
This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

GoogleTM books

<https://books.google.com>



PROPERTY OF
*University of
Michigan
Libraries*

'817



ARTES SCIENTIA VERITAS



THE ETHNOGRAPHICAL MUSEUM OF SWEDEN, STOCKHOLM
(STATENS ETNOGRAFISKA MUSEUM)

Monograph Series • Publication No. 4

GN

2

584

No. 4

2
2327-1
41

OF MICHIGAN

NOV 11 1957

LIBRARY

ANDEAN EXCAVATIONS

I

— *The Tiahuanaco Era East of Lake Titicaca* —

BY

STIG RYDÉN

STOCKHOLM 1957

THE ETHNOGRAPHICAL MUSEUM OF SWEDEN, STOCKHOLM

(STATENS ETNOGRAFISKA MUSEUM)

Monograph Series • Publication No. 4

GN

2

584

No. 4

2
2327-1
4✓
OF MICHELV

NOV 11 1957

LIBRARY

ANDEAN EXCAVATIONS

I

— *The Tiahuanaco Era East of Lake Titicaca* —

BY

STIG RYDÉN

STOCKHOLM 1957

ANDEAN EXCAVATIONS

I

— *The Tiahuanaco Era East of Lake Titicaca* —

BY

STIG RYDÉN

THE ETHNOGRAPHICAL MUSEUM OF SWEDEN, STOCKHOLM
(STATENS ETNOGRAFISKA MUSEUM)
Monograph Series · Publication No. 4

ANDEAN EXCAVATIONS

I

— *The Tiahuanaco Era East of Lake Titicaca* —

BY

STIG RYDÉN

STOCKHOLM 1957

The costs of printing this volume have been defrayed by
the Wenner-Gren Society (Wenner-Grenska Samfundet),
Stockholm, and the Humanistic Foundation of Sweden
(Humanistiska Fonden), Stockholm.

GÖTEBORG 1957
ELANDERS BOKTRYCKERI AKTIEBOLAG

To

Consul-general Einar Johansson

and Mme. Elena Franco de Johansson

FOREWORD

This report covers some months of field-work end 1951 and the first half of 1952 chiefly in Muñecas as well as Bautista Saavedra, northernmost Bolivian highland provinces on the east slope of La Cordillera Real east of Lake Titicaca and bordering on Peru. The object was to examine evidence, if any, of the Tiahuanaco culture's diffusion in this direction.

Work here was followed by research in the Cochabamba department, where one habitation-burial site at Tupuraya near Cochabamba city was examined. On this occasion I also examined a habitation site in very poor condition called Chullpa Pampa, similarly in the vicinity of Cochabamba, plainly representing an epoch antecedent to the Tiahuanaco era. The general results of the Chullpa Pampa excavations have already been published (*Rydén* 1952), but inasmuch as the material here obtained has since been made available for closer study, this report may have to be augmented.

Next followed, at Cayhuasi near Oruro city in the department of Oruro, an examination of a habitation site from the Tiahuanaco era and a libation site near some square adobe grave houses—a type of sepulchral structures known as «chullpas». Regrettably enough, work here had to terminate on account of the disturbances in connection with the 1952 revolution. I am looking forward to the day when the results obtained here and at Tupuraya can be published.

In the course of periodical sojourns in La Paz I also had the opportunity to inspect some habitation sites from the Tiahuanaco era within the city limits, now much damaged, however, by road work.

My work in Bolivia was rendered possible in the first place by the generous support of a compatriot and friend of mine, Mr. Einar Johansson, consul-general for Sweden in La Paz. Showering hospitality on me, Mr. Johansson and his wife made their comfortable home my own. In token of the deep gratitude I feel for all their kindness I therefore take the liberty of dedicating this volume to them.

When upon completion of the field-work there seemed to be no prospects whatever for disposal of the collections, not even on loan,

for systematic study in Sweden, Mr. Johansson at last succeeded in obtaining a permit which enabled me, for a period of 12 months, to check them over and to prepare the two volumes of which this one is the first. With gratitude I also recall in this connection the statement in my favour spontaneously made by Primera Reunion de la Mesa Redonda de Arqueología Boliviana (*Boletín Municipal*, No. 1044. p. 114, La Paz 1953).

With gratitude I also recollect the manner in which two Swedish assistants of Mr. Johansson's, Mr. Olle Gustafsson and Mr. Eskil Carlsson, both engineers, took care of me during weeks of illness.

In this connection I also take the occasion to express my special thanks to my friend Don Carlos Ponce Sanginés and his parents. It was Don Carlos who first drew my attention to the splendid prospects opened up for research in the Mollo area, with their family estate as starting point. Hospitality and exquisite courtesy marked my stay on their estate. Native guides and other help, mounts and pack animals were constantly held at my disposal, while Don Carlos himself and his foreman Donato Mollinedo M. served as expert guides on an excursion to the Peru border area, as recounted in the concluding section.

To the following institutions and private parties I am greatly indebted for generous assistance rendered me in a variety of ways while preparing for the expedition, during actual work on the spot as well as subsequent tabulation of the results, their magnanimity thus ensuring the successful completion of my work in Bolivia on this particular occasion:

Anna Ahrenberg's Foundation, Gothenburg

The Humanistic Foundation, Stockholm

The Swedish Society of Anthropology and Geography, Stockholm

The Wenner-Gren Foundation for Anthropological Research, New York

Señor Don Lucio Arze, Oruro

Dr. Wendell C. Bennett, New Haven, Conn. (†).

Mr. Gösta Bergman, director, Gothenburg

Mr. Erik Brodin, shipowner, Stockholm

Mr. Gomer Brunius, consul for Eire, Gothenburg

Señora Geraldine B. de Caballero, Cochabamba

Mr. Marcus Claesson, director, Kungälv

Mr. Nils Colliander, engineer, Gothenburg

Señor Don Lisandro A. Condarco, Oruro

Mr. Carl Albert Fallenius, consul for Norway, Gothenburg
Mr. Nils Gustafsson, director, Gothenburg
Mr. Elis Göth, director, Upsala
Mr. Eric Karling, chemist, Gothenburg
Señor Don Luis Kremser, Cochabamba
Mr. Knut J:son Mark, merchant, Gothenburg
Captain K. G. Nilsson, Buenos Aires
Mr. Torsten Odquist, director, Gothenburg
Señor Don Pablo de Rada, consul-general for Panama, La Paz
Mr. Henry Sjögren, director, Gothenburg
Señor Don Gustavo Tejada, Cochabamba
Mr. Bror Wikström, consul for Sweden, Oruro (†)
Aktiebolaget Tidan, Mariestad
Aktiebolaget Vitrum, Södertälje
Hasselblads Fotografiska AB, Gothenburg

Thanks are also due to the many friends and acquaintances who have so kindly aided me in preparing this study for publication. Thus Dr. Johannes Lepiksaar, assistant Curator of the Museum of Natural History, Gothenburg, as well as Dr. Nils-Gustaf Gejvall, of the Department of Anthropology and Osteology of the National Historical Museum, Stockholm, examined some of the skeletal remains; Dr. Arne Strömberg, of the same Museum, made spectrum analyses of the metal objects; Mrs. Elna Juhlin, Gothenburg, has redrawn some of the sketch maps published; Dr. Heath MacBain, of the Museum of Natural History, New York, made available Adolph F. Bandelier's notes and collections from his field-work in the area east of my work zone; Mr. Carl Ph. Mae assisted in the translation, Mr. S. Peterson Weld in the editing and proofreading.

In conclusion I wish to express my deep gratitude to the Board of the Wenner-Gren Society (Wenner-Grenska Samfundet) and the Humanistic Foundation of Sweden (Humanistiska Fonden), Stockholm, whose generous contributions rendered possible the appearance of this report.

Stig Rydén

Stockholm
December 1956

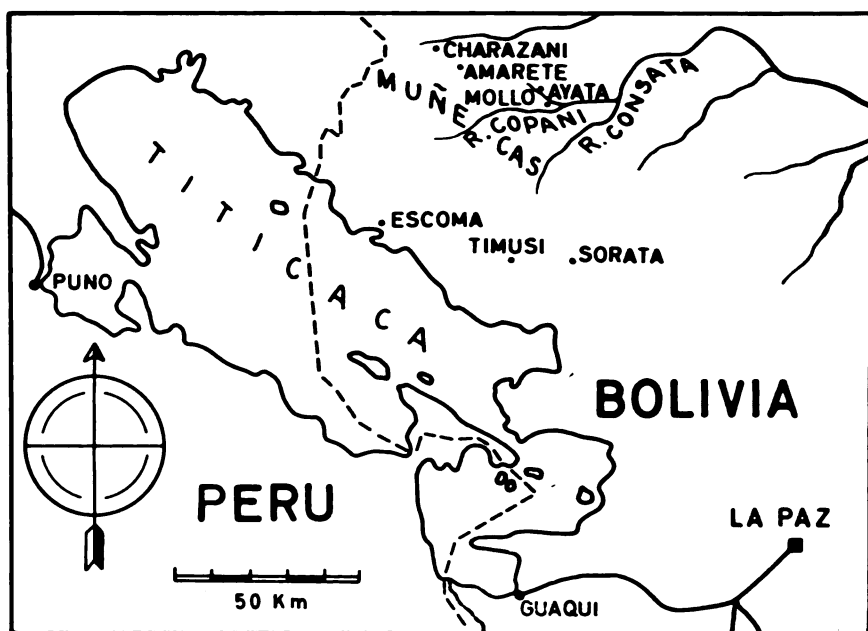


Fig. 1. Map showing the localities in the Muñecas-Bautista Saavedra region where examinations were made.

INTRODUCTION

In 1904—5 Erland Nordenskiöld carried out archaeological research in the Peru-Bolivia border areas east of Lake Titicaca and east of the area here treated, where his efforts centred on the Pelechuco, Queara and Ollachea valleys. The picture drawn by *Nordenskiöld* (1906, 1953) of the terrain where he worked tallies perfectly with the topography encountered by me; hence, for details in this particular respect I refer to Nordenskiöld's report and a somewhat later by *Wrigley* (1917). However, it should be noted that my work was confined to a zone much nearer the loftiest ranges of the eastern Andes and, consequently, nearer the Lake Titicaca basin of which the south portion is generally held to be the focal area of the Tiahuanaco culture. Thus the areas visited by me were much more exposed to diffusion and probably more susceptible to cultural influences from Central Tiahuanaco. Indeed, an essential difference, perhaps decisive, is found in the fact that the population in the area here concerned is Aymara while the area visited by Nordenskiöld is populated by Quichua having supplanted an earlier Aymara population. Nordenskiöld, however, concludes in fact that the discoveries he made pertain to these earlier Aymara (cf. map Fig. 1).

Nowadays there are two routes across the mountains from the Mollo area to the Titicaca basin. One of them, a mere trail running along Timusi Valley, assuming that a serviceable bridge once existed across the rapid Rio Copani, at the time in question must have had at least its present importance as a means of communication — the present bridge is only a few tree trunks slung across the canyon. Just past the bridge the ruins of a mission named Conventido point to earlier settlement, hustle and traffic also in these now desolate parts. There are sizable remains of both a church and other adobe buildings as well as irrigation channels with a watermill. The other route is now the highway from Ayata to Escoma on Lake Titicaca. However, in the rainy season January—March, this road too is periodically blocked for heavy traffic. There is reason to believe that then as now most traffic followed this route.

Communication with the eastward areas along Rio Copani may have been trifling, but from Mollo connections were established with

the regions to the north, i. e. the areas comprising the communities of Amarete, Charazani, Chuma, etc., from which points an eastward penetration seems to have been easier just as for communication in the opposite direction.

Passing east across the highest range and watershed of the Andes — all creeks in Mollo as well as in the border area later visited run east to form headwaters of the Amazon — one arrives in Ayata, the first trans-Andine agricultural district of importance, where the Mollo estate is located. Here it is in the first place the relative flatness of the hills and the gentleness of the mountain slopes that render agriculture feasible. Terracing, regular method in the Quichua country, does occur but is not carried out consistently. As a rule Ayata landowners live in La Paz, having overseers to attend the farms and direct the Indian farm labour. In their off-hours these Indian workers also till their own little patches but, unlike in the Peru border areas, there are few Indian land-holders in Ayata. The explanation might be found in the fact that Ayata, owing to its geographical position, earlier and much easier came into the possession of the Europeans. In the Mollo area maize is grown in such quantities that surpluses can be exported to Peru.

In his report on the Peru-Bolivia border area, *Nordenskiöld* (1906 p. 7 ff, 1953 p. 17 ff) also includes a brief review of the history of these parts together with data on the relevant literature, this summary also applying to the area here concerned. According to him, *Bandelier* (1910) — the Swiss archaeologist known inter alia for his field-work and excellent publication relative to the Titicaca islands — also carried out, in the company of his wife, similar research in practically the same area as the Swedish scientist (*Nordenskiöld* 1906 p. 8, 1953 p. 19). At the time *Nordenskiöld*'s work was issued, *Bandelier*'s results had not yet been published, nor have they since appeared. *Bandelier*'s notes and collections from his subsequent expeditions now repose in the American Museum of Natural History, New York. By courtesy of Dr. Heath MacBain I had an opportunity to make use of some of his data. It appears from them that his research also covered sites in the vicinity of Charazani, i. e. an area still nearer Mollo than that visited by *Nordenskiöld*. Jaramillo, one of the sites I examined near Charazani, is obviously identical with the one visited by *Bandelier* and his wife.

The Bolivian province of Muñecas, principal scene of our operations, is the original homeland of those roving medicine-men of South America so familiar to everybody — the Callahuayas. As to these strange

people, their activities and way of living, I refer above all to a volume by Otero (1950), and Leonard (1951 pp. 262—265), Wrigley (1917 p. 183), Paredes (1920 p. 218 ff), McBride (1921 p. 12 ff), Ponce Sanginés (1950), and others. The catalogue of an exhibition in 1953 with folklorist material in La Paz also carries many valuable details about them (*Catalogo* 1953).

Until quite recently the peregrinations of the Callahuayas covered practically all of South America. Since this peculiar custom must be assumed to bottom in a pre-Columbian tradition, the conclusion seems warranted that certain specific cultural impulses were brought by these Indians from distant regions to their native land. Some pottery specimens here noted seem to confirm this conclusion.

As stated in the foreword, the possibilities offered by Mollo regarding archaeological research were first brought to my notice by Don Carlos Ponce Sanginés, son of the proprietor of the Mollo estate, who had already paid a great deal of attention to the antiquities in this area. Rumours of ruins in the Chari Valley had also tempted him to spend some days there in the company of Señor Gregorio Cordero, assistant at the Museo Nacional "Tiahuanaco", La Paz, on which occasion the mapping of one of the large ruin complexes in this valley — Mallku Xanalaya — was started. The results of a trip thither in his company are touched upon in the concluding chapter. Some years before, Don Carlos had invited the director of the La Paz museum, Señor Manuel Liendo Lazarte, to examine some graves around Mollo. According to Don Carlos, the result of this undertaking was that a series of pottery specimens earlier discovered by him was incorporated in the collections of Museo Nacional. These specimens are reproduced by Ruben (1952 Figs. 39, 41 — the captions to Figs. 40 and 41 are transposed). Señor Liendo Lazarte is also said to have published an article on his Mollo visit in a La Paz journal, which, however, was not available to me. However, it is said to contain nothing of archaeological interest.

A collection of archaeological vessels from Larecacha of the same shapes and manufacture as those here dealt with is in the possession of the Convent of San Juan de Dios, La Paz. It has been published by Ibarra Grasso and Bramisa (1956 pp. 30—32).

The graves are not described here in the order in which they were located and examined but according to their actual positions, section by section. Pits are accounted for separately.

The maps covering the excavations in Mollo and the Peru border area are mere sketches. Therefore, the positions of, for instance, the

graves in the map Fig. 2 are somewhat misleading. For the sake of clarity it was necessary to space the markings a little when too close, this fact appearing from the descriptive text. For the same reason it also proved impossible to sketch in all skeletal remains on a map of a grave, while wall slabs nearest the reader also have been omitted in a few cross-sections, the required data then found in the text. All work was done in the rainy season, which rendered drawing and mapping extremely difficult, thus compelling summary action.

In the descriptions of objects such as pottery I have employed the terminology earlier used by me in studies on Bolivian archaeology (Rydén 1947, 1956). Because of the diversity of types, in due order no doubt calling for differentiation, I am now as earlier tentatively using the generic term 'grave house' to denote the casket or tower-like structures, commonly known as *chullpas*, usually square but occasionally also round, ranging in height from 1.5 or 2 metres to sizable buildings of two or more storeys, each with a square opening in front.

According to my field-notes, intact pottery specimens were found in some graves. However, when going through the collection in the course of preparing the data here presented, they were found smashed to pieces, probably in transit, and also with an appreciable number of sherds missing, no doubt to be adduced to the official checking procedure to which the collections were subjected by the Bolivian authorities in La Paz before loaning them to me — for a second time after my departure from there. These vessels are here shown as complete. A similar fate befell some samples of charcoal from pits and graves intended for C 14 tests. When unpacked the samples were found in conditions deplorable enough to preclude their use as material in such costly procedures.

Upon completion of this report, all specimens included and described here were returned to Bolivia, where they now presumably repose in Museo Nacional "Tiahuanaco", La Paz.

THE MOLLO AREA

Mollo estate is located 17 km south of the community of Ayata in the province of Muñecas, department of La Paz. The road running from Ayata to Mollo as an extension of the highway connecting Ayata with Escoma on Lake Titicaca follows the east side of a range, the southernmost top of which, located just southwest of and above Mollo, is called *Jutaraya*. Maximum elevation of *Jutaraya* is about 3,200 m above sea level. Here 23 graves were examined (pp. 110—130).

Below *Jutaraya* two low ranges extend in a southerly direction. The westernmost of these is named *Kellikani*. On the southern point of this range several graves were found, six of which are described in the following (pp. 105—110).

Just south of *Kellikani* a small isolated hill named *Chulpani* forms an extension of the *Kellikani* range. Here a pit was dug, during which two graves were found. Judging from the nature and extent of residue, *Chulpani*, although no traces of buildings were found, must have been a place of fairly permanent habitation. Also an isolated grave was examined here (pp. 94—105).

The eastern spur at the foot of *Jutaraya* is called *Markopata* (sketch map Fig. 2, Figs. 3—8). It extends almost parallel with *Kellikani*. In fact, *Markopata* consists of two parallel ranges, a broad eastern and a narrow one in the west, thus forming a valley in between (Fig. 6). The southernmost part of the western of these ranges is named *Pilki-sani*. In the following, however, the whole of this area, on which research in the Mollo area was centred, will be designated *Markopata*. At *Markopata* about 40 graves were examined. On two sites, marked P1—P2 on the map Fig. 2, where permanent habitation evidently had existed, pits were dug (pp. 20—94).

At a distance of about 10 km west of *Chulpani-Kellikani* there is a deep valley formed by Rio Copani. East of *Markopata* there is a similar canyon with a creek running from Ayata. East of Mollo these canyons form a junction. The Mollo estate is situated below *Markopata* at the right end of the last-mentioned canyon. Thus, Mollo is located on an almost triangular outcrop, two sides of which are

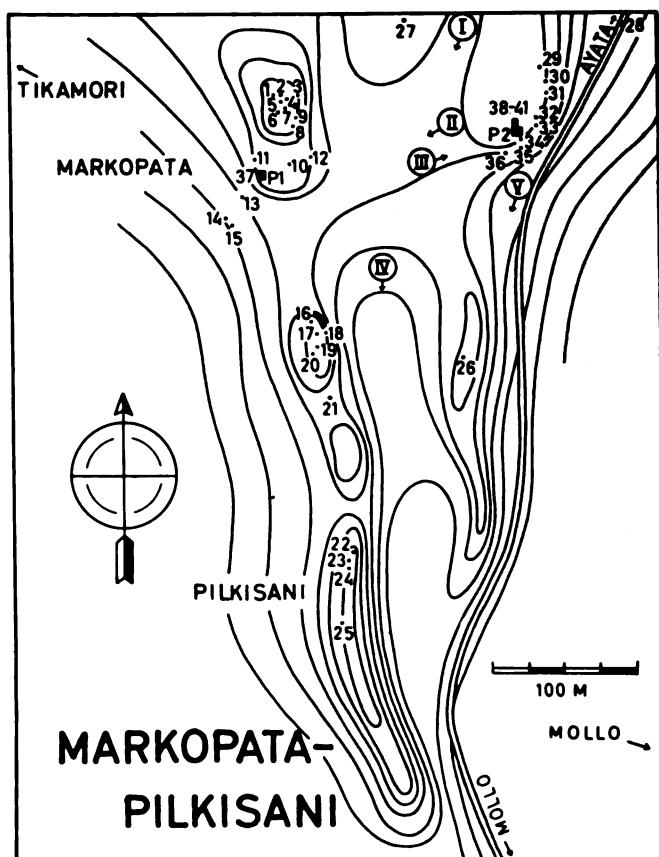


Fig. 2. Map showing the examined area west of the Mollo estate. Roman figure within circle with arrow indicates the camera position for Figs. 4—8.



Fig. 3. In background the Markopata ridge seen from the northeast, i. e. the road to Ayata.



Fig. 4. North portion of the central depression on Markopata seen from the northeast.
Camera position marked I on map Fig. 2.



Fig. 5. South portion of the northwesternmost elevation on Markopata seen from the northeast. Camera position marked II on map Fig. 2.

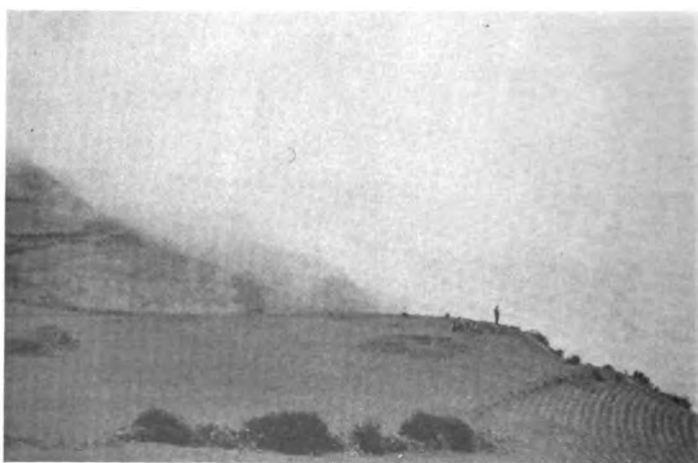


Fig. 6. The crest of the eastern section of Markopata, seen from the west, being veiled in clouds. Below the crest Pit 2, just started, is noticeable. Camera position marked III on map Fig. 2.



Fig. 7. South portion of the central depression on Markopata seen from the north. Camera position marked IV on map Fig. 2.



Fig. 8. South portion of the easternmost ridge of Markopata seen from the northeast, i. e. the Mollo-Ayata road. Note how the steep eastern slope has been terraced without rampart constructions. Camera position marked V on map Fig. 2.

bounded by these two canyons and on the third side by Jutaraya. The altitude of Mollo is estimated at 2,800 m.

One grave on an estate adjacent to Mollo, *La Isla*, was also examined. This estate is located on a spur extending below and to the north of Mollo in a more easterly direction into the valley leading to Ayata (p. 130—131).

MARKOPATA

Apart from some of the steepest slopes — this applies to Pilkisani — practically the whole area covered by the examinations on Markopata is cultivated. The cultivated slopes are not steep enough to necessitate terracing. The stone walls found in some places between the fields seem to be heaps of boulders picked out of the fields rather than protecting walls against the erosion resultant from the heavy rains in January—March. Thus the topography permits broad fields. Narrow fields are found only on the steepest slopes, and even here without actual terrace constructions but with protecting walls or stripes of stones. The crests of the ridges found in this area are flat and also cultivated. In a way Pilkisani is an exception since the crest here is narrow and has steeper slopes where distinct traces of erosion can be seen. Therefore this ridge is not cultivated. However, traces of earlier cultivation can be observed.

Surface Residue (Fig. 9)

Surface residue such as sherds etc. is not so extensive at Markopata. Most objects of this kind are found on the slopes of the northernmost isolated ridge, where Graves 1—15 were examined, and in the area around Pit 2 (cf. map Fig. 2). This concentration indicates ancient habitation sites here. Hence, pit excavations were carried out in these locations.

Apart from some stone objects, only one group of surface sherds, presumably of Inca origin, will here be dealt with since no definite Inca specimens were located in the graves themselves (Fig. 9). The omitted surface sherds have their parallels among sherds from the pit excavations or among intact vessels from the graves examined.

The sherds in Fig. 9: A-H represent bowls of Inca origin.

All ware is brown, the surfaces having a white coating. The polish under this even coating is carefully done. Thus the surface almost suggests porcelain. Sherd H lacks this white coating on the outer side.

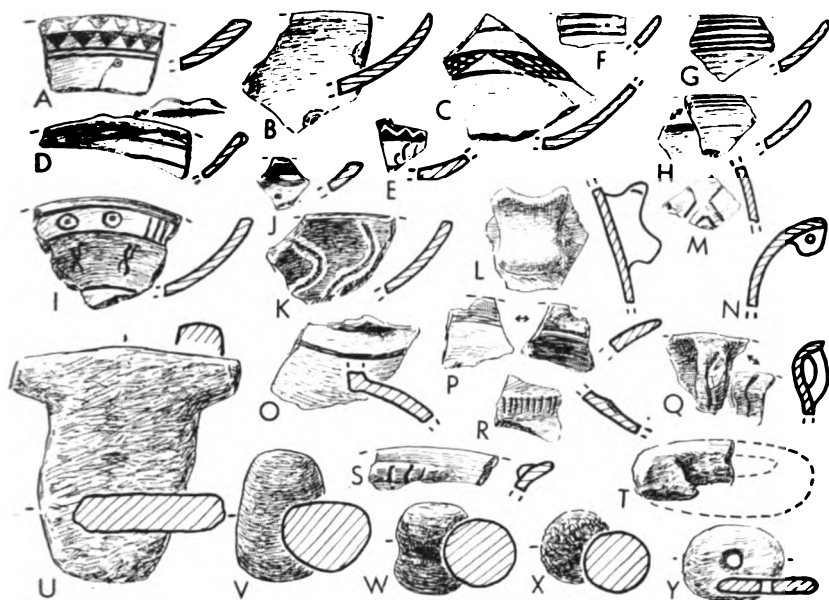


Fig. 9. Surface residue, Markopata. 1/4.

Sherds C, D and F are decorated in black. On Sherd A the top row of triangles is painted in brown as are the line and ring at the bottom, these latter presumably representing a bird's head and neck. The eye of this fragmentary figure of a bird as well as the rest of the decoration on this sherd is done in black. On Sherd B the outer circles of the design are in yellow or brown whereas the innermost is black. The same decorative colours recur on Sherd E, where the small design at the bottom is in yellow. The outlines are black. A brown pattern covers the white at the top, leaving the white coating in a zig-zag line. Sherds F-G are featured by close concentric circles. As already mentioned, Sherd F has circles in black, on G the outer ones are black, the inner ones brown, and on H some circles between these two colours are greyish-black. This latter sherd has a broader black line on the under-side of the rim.

The same ware as in Sherds A-H recurs in Sherds I-Q. Surfaces have the brown colour of the ware. On Sherd I the inner side has a white band with black decoration nearest the edge. The central part of the bowl has also a white covering colour bounded by a black line. In the intermediate field black cross-shaped figures are seen. Sherd J shows

black decoration only, while on K the spaces between the wavy black lines are covered with violet-brown. The surface colour of the ware shows between the black and violet-brown. Also, the surface of the latter sherd is not so well polished as the other bowl sherds.

Sherd L, a strap lug in the shape of an animal head, is part of an aryballus. The ware is brown like that of the bowls. The white coating is almost obliterated. Sherds M-P may also derive from aryballi of the same ware. The decoration on sherd M is in grey and black. On Sherd N the outer side, as well as the inner side next to the rim, is covered with a brown coating. On Sherd O a black-and-white decorative stripe is found just where neck and bulbous part of the aryballus meet. Along the rim on Sherd P there is a broad brown stripe on the inner side while the outer side is entirely covered with black. A decorative white line runs through the black.

Whether Sherds Q-S are Inca or not is uncertain. The ware of the sherds is brown. The ware of Sherds R-S resembles that found in modern pottery of "Pucara manufacture", this ware also occurring in the province of Muñecas in specimens of local manufacture, such as those made at Amarete. Pucara and Amarete earthenware is coarse and of light-brown colour. Pucara vessels have an olive-green glaze and darker painted decorative lines. Amarete vessels lack this glaze but have painted decoration in darker brown. Vessels of Pucara type are manufactured also in some Bolivian communities south of Lake Titicaca. The ware of Sherd Q is more reddish, thus rather corresponding to the vessels from the graves showing Tiahuanaco influences. On both sides of the latter sherd there are parallel vertical wavy lines in black-and-white.

The rock of objects T-Y is greyish, that of Y being slightly paler than the others. The rock of the T-shaped axe U seems stratified, the stratification, if any, coinciding with the axe's edge. Fragment T is apparently from an annular club head. Object V is a small pestle or grinding stone, W a bola weight. This also applies to the spherical stone X. Stone object Y may be a spindle-whorl.

Graves 1—15

Grave I was located on the flat crest of the northwesternmost ridge at Markopata. On this crest and its slopes, Graves 2—15 and Pit I with Grave 37 — marked P I on map Fig. 2 — were also examined.



Fig. 10. Grave 1, Markopata, seen from the southwest after removal of the roof slab.

Grave 1 (Figs. 10—11)

Slab cist not visible before excavation. The flat roof slab was discovered roughly 40 cm below surface.

The floor was covered with a layer of compact earth measuring about 20 cm in depth. Remains of skeletons were embedded and seen in this layer (cf. Fig. 10) together with the largest (1) of the three vessels found in this grave. The vessel in question lay on its side in the southern part of the cist, its opening turned towards the northeast. Two large femur fragments rested against the bottom part of the vessel. The ware is greyish-black, the outer side polished. North of, and partly covered by this vessel, a bulbous vessel with drinking-tube (2) was found in the same position. The ware of the latter vessel is brownish, and on the reddish coating there are traces of decoration in black on the outer side. Of this decoration only a horizontal bottom line is discernible. Against the western wall some vertebrae and ribs were found almost in situ. Their position indicates that the deceased — an adult female (?) — was buried in a sitting posture with legs drawn up to the chin and probably facing east. A cranial fragment lay in the northeasternmost

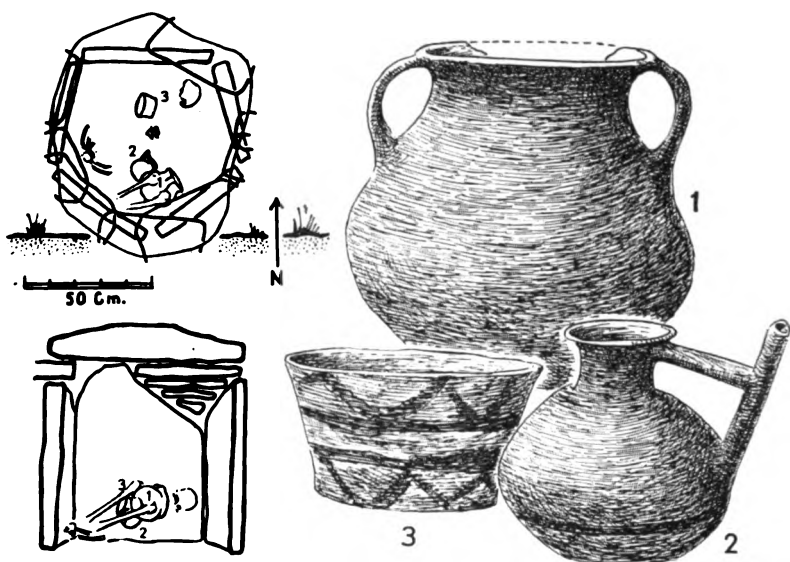


Fig. 11. Grave 1, Markopata. 1/4.

corner. West of the cranium there were several bones of extremities as well as other skeletal remains. Of these skeletal remains only some vertebrae are indicated in the sketch in Fig. 11, this in order better to show the position of the vessel (3) last discovered, which lay leaning under the extremital bones with its opening pointing west. The vessel — a flaring-sided bowl — is of brown ware. It has a well-polished outer side and on this side a coating more reddish than the ware. On the outer side there is painted decoration in black.

The flaring-sided bowl (3) and the vessel (2) with drinking-tube are presumably local copies of vessels from the Central Tiahuanaco culture south of Lake Titicaca.

Grave 2 (Fig. 12)

Slab cist on the flat crest of the ridge about 1 m east of Grave 1. Before excavation the northern and northeastern wall slabs were visible on the surface.

The filling was quite hard. At bottom level in the west, cranial remains of an individual, approximately 15 years of age, were found. Close by and north of the cranial remains lay some fragments of ribs and of a lower jaw. Some of these fragments had a strikingly dark surface. The cranium was crushed to pieces by the earth pressure.

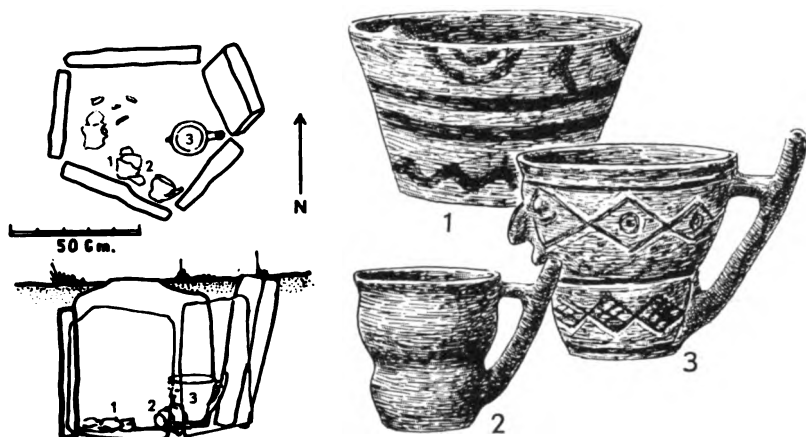


Fig. 12. Grave 2, Markopata. 1/4.

At the same level the following vessels were discovered. In the southwest there was a broken flaring-sided bowl (1) of brown ware with a somewhat more reddish coating on the outer side. On the inner side this coating covers only the portion nearest the rim. The decoration on the outer side is in black-and-white, the latter colour, however, being almost obliterated. Apparently it had covered the area between the horizontal parallel black lines and between the wavy lines below the rim. On the rim is a small boss. Farthest to the south a kero-shaped vessel provided with drinking-tube (2) was lying on its side with its opening towards the northeast. The ware was light-brown with well-polished outer side, probably also with a more reddish coating on this side. A similar vessel (3) with, however, a face in relief on the side opposite the drinking-tube, and with painted decoration in black-and-white on a reddish coating on the outer side, was standing in the east. As the decoration shows in Fig. 12 it is a part reconstruction from that on the reverse side.

Traces of charcoal were noted in the filling.

By their shapes the vessels in this grave show a marked influence from the Central Tiahuanaco culture.

Grave 3 (Figs. 13—15)

A test pit was started on the flat crest of the ridge about 5 m east of Grave 2, in the course of which the grave here described was discovered. At first, owing to its size and construction, it was thought to



Fig. 13. Grave 3, Markopata, seen from the southwest after completion of the examination. Camera position marked I on sketch map Fig. 15.



Fig. 14. Grave 3, Markopata, seen from the east after completion of the examination. Camera position marked II on sketch map Fig. 15.

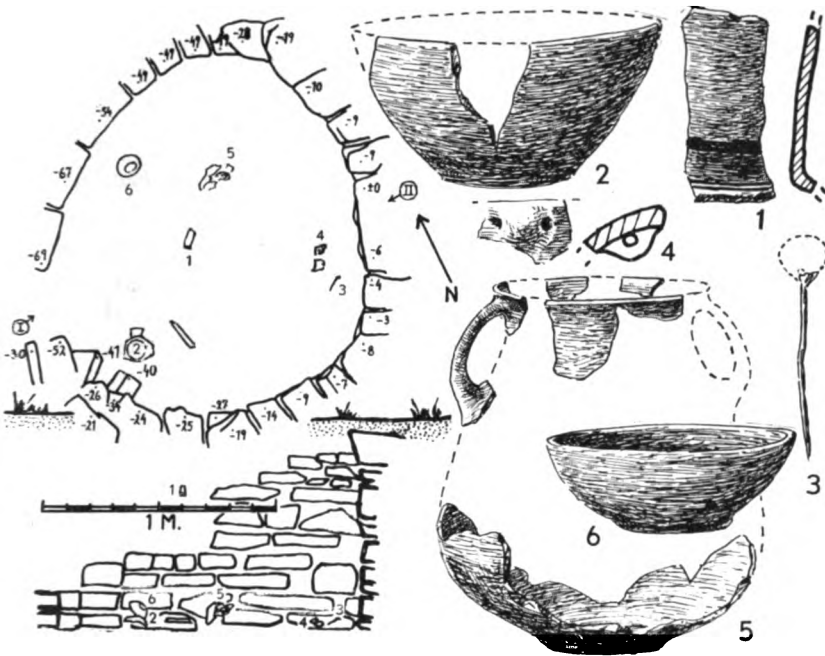


Fig. 15. Grave 3, Markopata. 3 and 4 are half-size, the rest 1/4. Camera position for Figs. 13-14 marked I-II within circle with arrow on the sketch map.

be a hut with floor sunk below the surface (cf. Rydén 1947, p. 387 ff.). The walls were made of rough stones placed on top of each other instead of slabs placed edgewise. The walls curved slightly inwards. The western wall had caved in. Here some stones were removed from the wall before it became apparent that it was a grave. The position of the tumbled-down stones is not indicated in the sketch Fig. 15. The door-like opening in the west is not due to damage during the aforementioned removal, but probably from the start an opening or gap in the wall. Especially in the northwest, the wall is very carefully constructed. The joints between the stones were probably filled up with clay.

At first large stones were found everywhere in the filling. Most of them were evidently wall stones. At a depth of about 30 cm right in the centre, a neck fragment of an Inca aryballus was found (1). This sherd is of brown ware. On its outer side there is painted decoration in white, black and red-brown. The latter colour recurs below the broad black line. White with two black lines bounds this brown horizontal

line at the bottom. At bottom level, about 80 cm below surface, a fragmentary inverted bowl was found close by the western wall (2). The ware is greyish-black, the surface well-polished, especially on the inner side. Close by the eastern wall there was the point of a topu (3). Spectrum analysis showed it made of an alloy consisting, besides copper, of about 10 per cent tin, 2 per cent silver and 1 per cent lead. Close by there was a rim fragment of an Inca aryballus of brown ware with a coating of almost the same colour (4). The holed drop button of the rim is painted white. A sherd from the space between bottom and side, probably from the same aryballus, had been found earlier in the nearby filling. Approximately in the centre of the grave there were several olla sherds (5), and in the northwest a complete bowl of greyish ware with polished sides lying bottom up (6). Close by the vessel (2) was a fragment of the femur of an adult. Traces of charcoal were noted everywhere in the filling.

The contents of the grave seem to have been disturbed. Dateable sherds are all of Inca manufacture, or of local vessels influenced by Inca. Whether these sherds represent vessels belonging to the original burial is very doubtful. If anything, the residue in question may have got into the grave as result of erosion or some other way.

Grave 4 (Fig. 16)

Slab cist 2.5 m west of Grave 3. The discovery was due to one of the six wall slabs jutting out of the ground.

Apart from some stones, the filling contained some traces of charcoal. At a depth of 30 cm there were some cranial fragments together with some olla sherds and one bowl sherd (1) of greyish-brown ware with polished sides and decoration in red-brown on the inner side. A few skeletal fragments and olla sherds were found deeper even down to bottom level. Close by and parallel with the northern slab, a large femur fragment was lying horizontally. Between the latter and the wall slab lay the bottom part of a vessel of olla type (2). The ware is greyish-brown with a darker, almost black, polished outer side. Under this bottom part a bowl (3) was standing with its opening turned slightly towards the centre of the grave. The ware of the bowl is brownish and rather coarse. The polish on the sides is also somewhat faulty. On the rim there are two bosses opposite each other with traverse incised lines. The bottom part first discovered seemingly had been the lid of the bowl. A bottom sherd and sherds of another vessel of olla type were found in the centre. Afterwards these sherds and other sherds from the

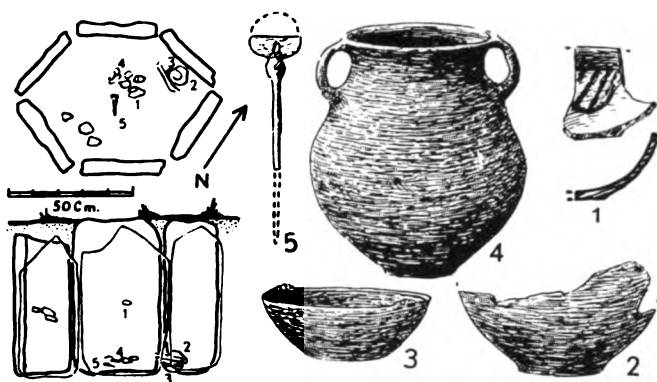


Fig. 16. Grave 4, Markopata. 5 is half-size, the rest 1/4.

filling could be assembled to an almost complete vessel (4). In Fig. 15 it is shown as a complete vessel. Among these sherds there was also a topu with broken head and pin (5). Owing to wear the hole is oblong. Spectrum analysis showed that the pin is made of silver alloyed with about 10 per cent copper, 1 per cent tin and 1 per cent lead.

The skeletal remains point to an adult.

On the basis of the pottery found, the grave cannot be dated with certainty. The semi-spherical shape of Bowl 3, however, indicates that it may be of rather late date, i. e. post-Tiahuanaco.

Grave 5 (Fig. 17)

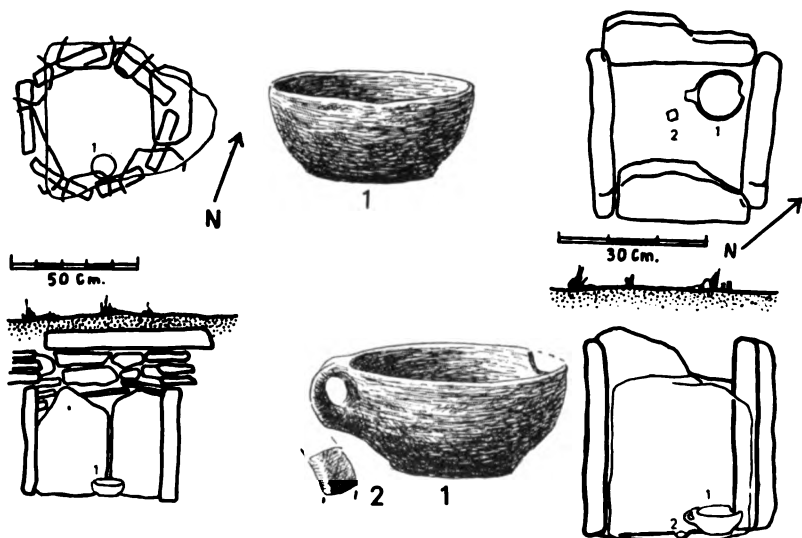
Slab cist about 3 m west of Grave 4 and 1.5 m south of Grave 2.

The horizontal roof slab, a little more than 10 cm thick, lay 10 cm below surface. The upper part of the cist was empty while the bottom was filled with earth and rubble. In this filling were some mouldered fragments of extremities and olla sherds. A couple of femur fragments indicate an adult. At bottom level a bowl (1) was standing close by the southern wall, its opening pointing slightly towards the centre of the grave. This bowl is of brown ware. Its sides are polished and covered by a coating of a shade more reddish than that of the ware.

The vessel found yields no definite information as to the date of the grave. However, the shape of the bowl, resembling the late, semi-spherical type rather than the flaring-sided Tiahuanaco bowl, points to a rather late date.

Grave 6 (Fig. 18)

Slab cist not visible prior to excavation, located in the course of test-digging 3 m south of Grave 5.



Figs. 17—18. Graves 5—6. Markopata. 1/4.

This cist was remarkably small and constructed of only four thin wall slabs placed edgeways. The upper part of all slabs were tilted towards the northwest. Traces of charcoal were found in the filling to a depth of 25 cm. At bottom level to the north, a single-eared bowl was standing, its ear turned towards the southwest (1). Near the centre of the grave, part of a ribbon-shaped ear (2), probably of an olla, was found. The bowl with its polished sides is rather crudely made of greyish-brown ware. Owing to uneven firing the surface alternates in brown and black. The ware of the ear fragment is the greyish-black typical of ollas.

The shape of the bowl indicates that the grave is of rather late date. Thus a bowl of almost the same shape but provided with painted decoration was found in a square grave house of stone on the island of Taquiri in Lake Titicaca (*Rydén* 1947 pp. 348—349, Fig. 140).

Grave 7 (Fig. 19)

Slab cist 2 m northeast of Grave 6. The wall slabs in the northwest were visible on the surface before excavation.

At bottom level in the south a flaring-sided bowl was lying on its side, its opening towards the northwest (1). This bowl is of brown ware and has apparently had a more reddish coating. On the outer side

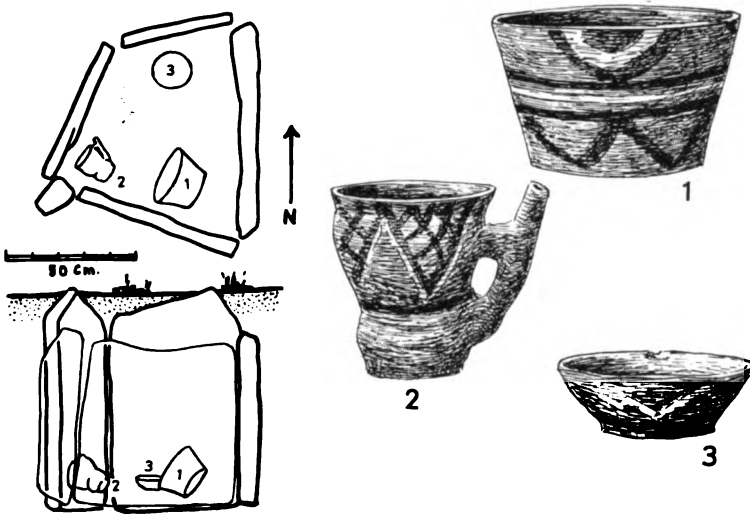


Fig. 19. Grave 7. Markopata. 1/4.

there is also decoration in black-and-white. Some distance west of this vessel, a kero with drinking-tube (2) was found in the same position. Ware and surface treatment are identical with Vessel 1, this applying also to the decorative colours on the outer side. However, the white on this vessel is obliterated so that only a duller shade on the brown surface now indicates the original appearance of the white decoration. Finally, farthest north there was a bowl (3) of brown ware with a red-violet coating. However, this coating does not cover the central part of the inner side of the bowl. On the outer side there are traces of a broad horizontal zig-zag line in white. The bowl was found standing.

Vessels 1 and 2 in particular show distinct Tiahuanaco influence.

Grave 8 (Fig. 20)

Slab cist 2.5 m from the southern and eastern edges of the flat ridge. The grave was not visible on the surface before excavation. Thus the roof slab, 10 cm thick, lay 10 cm below surface. The grave was discovered by pounding a pick-axe on the ground and in so doing hearing a sound more hollow than that from the surrounding intact earth.

The cist was filled to a height of 3 cm. only with clay, fine and almost black, deposited in the grave by rains. A single-eared bulbous vessel with neck (1) was lying on its side with its opening towards northeast

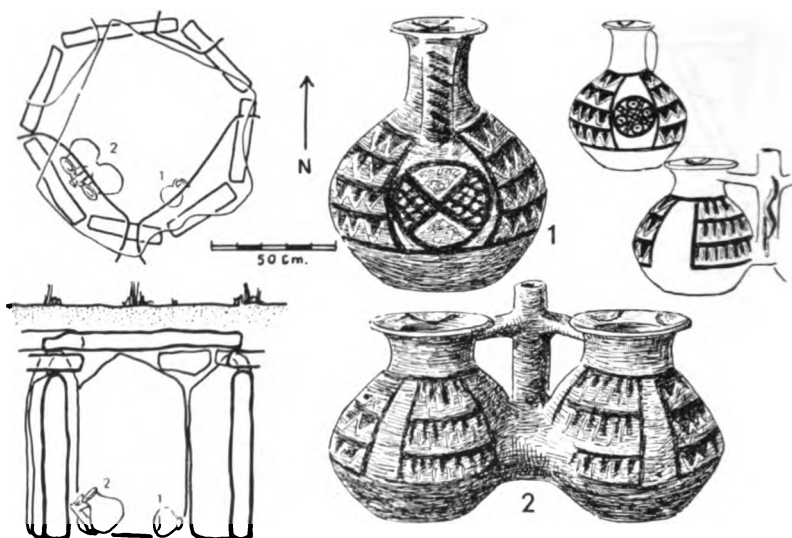


Fig. 20. Grave 8, Markopata. 1/4.

and a communicating twin-vessel (2) leaning against the slab in the southwest. Both vessels are of the same brown ware and have decoration in black-and-white. The outer sides are polished and were probably provided with a coating of the shade of the ware. On the single-eared vessel (1) the white paint is seen as fine lines at the bottom of the triangles, below each black stroke across the ear, and as dots in the circles or on the crosswise black lines of the circles. On the inner side of the rim the white paint shows as edge lines of black semi-circles. On the communicating twin-vessel (2) three fields with decoration are found on each vessel. The same field of decoration with triangles as on Vessel 1 occurs on the outer side of each vessel. On either side of this field there is another field where the triangles have been replaced by short vertical strokes. The white paint here occurs as edge lines on the underside of the triangles at the first-mentioned fields and as short strokes between the short vertical black lines in the two other fields. A black vertical wavy line with a white one adorns the outer side of the tube.

As regards the painted decoration, the vessels show distinct Inca influence. Horizontal rows of triangles are thus a common decoration on Inca aryballi (*Muelle y Blas* 1938 Fig. 10, *Rydén* 1947 pp. 328—329, map 41). A specimen of exactly the same shape as the twin vessel (2) was found by *Nordenskiöld* (1906 Fig. 4, 1953 Fig. 4) when he

examined a surface grave constructed of four slabs placed edgewise in Pelechuco Valley. The shape of these vessels is unique, however, and resembles no Inca or Tiahuanaco shape, but to some extent types of vessels from the Peruvian coast (cf. pp. 140—141).

Grave 9 (Fig. 21)

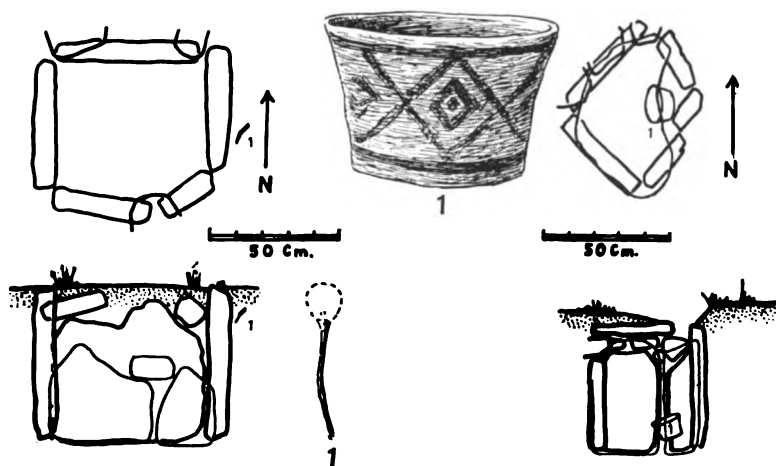
Slab cist 6 m south of Grave 3, and 5 m north of Grave 8. The wall slabs in the east and west were visible on the surface before excavation.

In the filling there were some 10 sherds of a large olla of greyish-brown ware, among them a bottom fragment and a fragment of a ribbon-shaped ear. These sherds could scarcely represent the same vessel. Apparently they had been washed down in the grave by rains. Hence they are not shown here.

Outside the grave, just under the surface, a topu pin (1) was found. Spectrum analysis showed it made of an alloy of copper with about 10 per cent tin, 2 per cent silver and 1 per cent lead. Judging from the spot where found, this pin could scarcely have been part of the original funerary requisites.

Grave 10 (Fig. 22)

Slab cist located almost in the centre of the flat ridge on a slightly lower shelf to the south on the northwesternmost hill at Markopata. The grave was discovered because a depression had been formed between two of the wall slabs by earth having run down into the cist.



Figs. 21—22. Graves 9 and 10, Markopata. 1/4.



Fig. 23. Grave 11, Markopata, seen from the southwest before examination.



Fig. 24. Grave 11, Markopata, seen from the southwest before completion the examination.

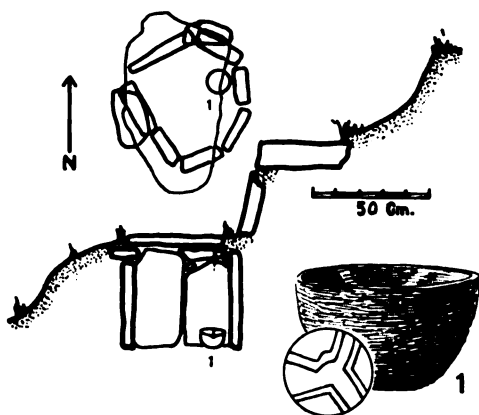


Fig. 25. Grave 11, Markopata. 1/4.

Fine earth filled the cist nearly to the roof slab. Just under the surface of this filling an olla sherd and a bone fragment were found. They are not shown since apparently they were no part of the original contents. At bottom level in the east, a flaring-sided bowl (1) stood upright leaning towards the centre of the grave. The ware is brown and has a coating of a more redish colour on the outer side as well as on the upper portion of the inner side. About midway on the inner side there is a horizontal groove round the bowl, corresponding to a very faint ridge on the outer side. The outer side has decoration painted in black. The workmanship of the bowl is rather crude.

The bowl corresponds to the flaring-sided bowl of Central Tiahuanaco; the horizontal groove on the inner side also shows influence from the Tiahuanaco kero.

Grave 11 (Figs. 23—25)

Slab cist 15 m west of Grave 10 on the western slope of the ridge in the south and about 1 m from its edge. All of the flat roof slab was visible before excavation (Fig. 23). At the end of the grave immediately east, one slab stood on edge, its lower end level with the roof slab. Above this slab another was found in horizontal position. The slabs are marked in the cross-section but not on the sketch map in Fig. 25.

The cist was half filled with earth. At bottom level close by the wall in the east there stood a round-bottomed bowl (1) with a small flattening for stand (Fig. 25). The rim is flat and has exceedingly sharp edges. The ware is light-brown, the outer side being slightly darker than the inner.

The outer side is not as well polished as the inner. On the inner side there is an angular decoration of broad lines in light-brown. Originally the colour was probably white.

The semi-spherical shape of the bowl indicates that the grave is of late date, i. e. post-Tiahuanaco.

When test-digging 2 m north of this grave, two rim fragments of two large ollas were found, both with broad ribbon-shaped ears starting right below the rim. In both instances the opening diameter was at least 15 cm.

Grave 12 (Fig. 26)

This grave was located on the eastern slope of the lower shelf of the ridge on the northwesternmost hill at Markopata, about 5 m east of Grave 10. A Bolivian assistant discovered it but did not mention his discovery until he found an aryballus-shaped vessel (2). Hence I am unable to report its exact appearance before excavation. However, only its western part was said to have been covered by the roof slab.

The walls were made of rough slabs placed horizontally atop one another. The joints between the stones were probably filled with clay. At bottom level in the east an olla was lying on its side with its opening turned towards the northwest (1). The ware is light-brown, the outer side polished and of a somewhat lighter shade. To the west at the same level there was an aryballus-shaped vessel of greyish-brown ware with well-polished outer side (2). As result of the firing, the outer side has almost black spots. Below the neck there is a strap lug. In the south at bottom level there was a spindle-whorl of

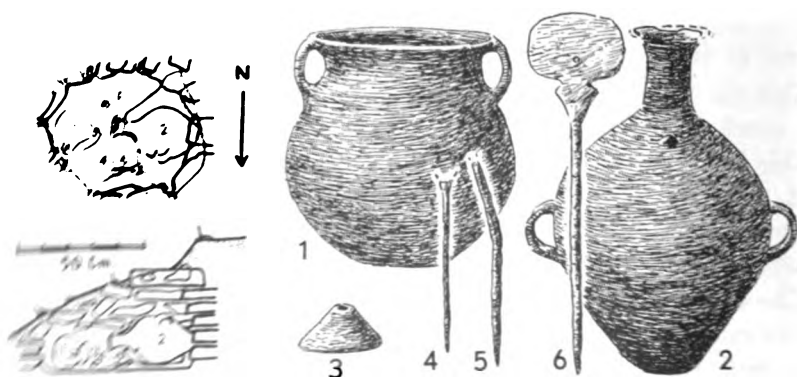


Fig. 26. Grave 12, Markopata. 1 and 2 are 1/8, the rest 1/2.

brownish ware (3), in the north at the same level an entire topu and two fragmentary pin parts of a couple of others (4—6). Spectrum analysis showed all three objects to be of bronze. Objects 4 and 6 contain about 5 per cent tin, 10 per cent silver and 1 per cent lead, while the copper in object 5 is alloyed with about 5 per cent tin, 2 per cent silver and 1 per cent lead.

By its shape Vessel 2 shows distinct Inca influence. Consequently this vessel may be a local copy of the Inca aryballus.

Grave 13 (Fig. 27)

Slab cist in a field on the western slope of the hill about 25 m south-west of Grave 11. The cist was not visible before excavation.

This cist was filled with earth. At bottom level close by the wall slabs in the north were remains of a cranium with face turned towards the south and, horizontally in front of the cranium, a femur fragment. Another fragment, probably also of a femur, was leaning against the wall slab east of the cranium. Since the frontal part is slightly depressed, the cranium may have been deformed intentionally. These skeletal remains are of an adult.

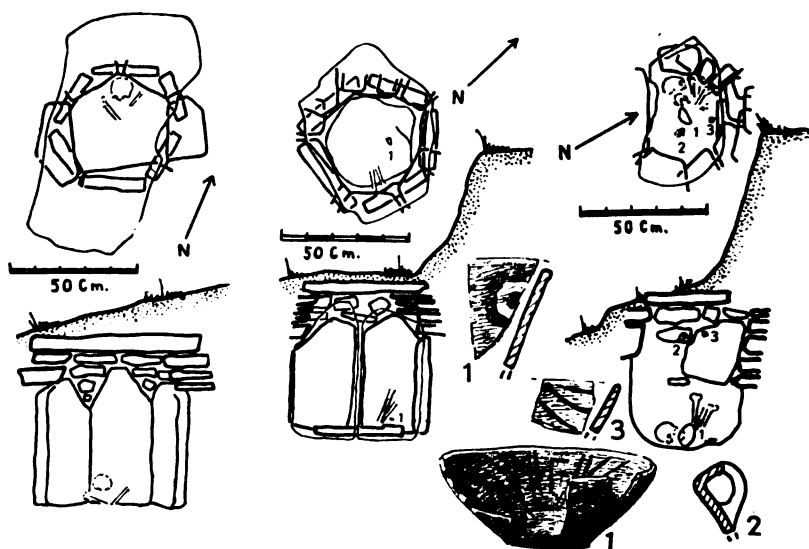
Grave 14 (Fig. 28)

Like Grave 15, this cist was located below a boundary terrace wall between two fields on the same slope where Grave 13 was examined.

On the slope below Grave 14 some bones of llama as well as sherds were found. Some of these sherds have a yellowish-brown surface, and traces of broad black decorative lines. A fragment of a stone mortar was also found. The material is a grey fine-grained rock.

Apart from a 5-cm earth layer covering the bottom, the cist was empty. Under this layer there was a slab apparently meant as floor. A few extremital bone fragments were leaning against the wall slab in the southeast. The skeletal remains represent an adult. Near the centre there lay a rim sherd, probably of a flaring-sided bowl (1) of brown ware, on the outer side decorated in black- and white.

The sherd last found (1) represent a Tiahuanaco-influenced type of bowl. However, it undoubtedly landed in the grave by accident and therefore yields no certain information as to its date.



Figs. 27—29. Graves 13, 14 and 15, Markopata. 1/4.

Grave 15 (Fig. 29)

The position of this grave has been accounted for under Grave 14. Grave 15 was discovered 10 m southeast of the first-mentioned. Part of the slab covering it was visible before excavation.

The upper part of the wall was made of rough slabs placed horizontally, one atop the other. The lower part had been sunk in the earth, and thus it was easy to distinguish between the grave filling and the earth wall, the filling being darker and softer than the more brownish earth wall.

About 20 cm below the roof slab and slightly to the south was an olla ear sherd (2), close by the wall in the north a bowl rim sherd, this latter of brown ware with polished surfaces and decoration in black on the inner side (3). In the centre of the 60-cm bottom level a bowl was lying on its side with its opening pointing north (1). According to my notes, the bowl was complete when found. When checking the collection, however, it was found smashed, remaining incomplete after reconstruction. The ware is greyish-brown, the inner side especially well-polished. On both sides the decoration is done in red-brown. A decorative design resembles the letter B, which may indicate that the bowl, as well as the grave, is post-Columbian. The skeletal remains, of which only the cranium and femurs have been sketched in, are

from an adult male individual. The cranium lay in the west at bottom level with its face turned towards the north. Here, several extremital bones were leaning against the northern wall.

Also the spherical shape of Bowl 1 indicates that this grave is of late date.

Graves 16—21

Grave 16 was located in the course of exploration of the gentle northern slope of the hill forming the central crest of the more western ridge at Markopata. On this hill also Graves 17—21 were examined.

Grave 16 (Fig. 30).

Neither slabs nor anything else indicated the position of this grave before excavation. Near surface was first found a topu fragment (10), subsequently an olla sherd. Spectrum analysis showed the topu fragment to be of bronze. The tin content is about 10 per cent. The bronze contains further about 2 per cent silver and 1 per cent lead. Whether these objects belong to the grave is uncertain, although probable, at least as far as the topu is concerned. Skeletal remains and vessels lying close together under the topu may indicate that the grave once had walls of slabs but that these had been removed during cultivation.

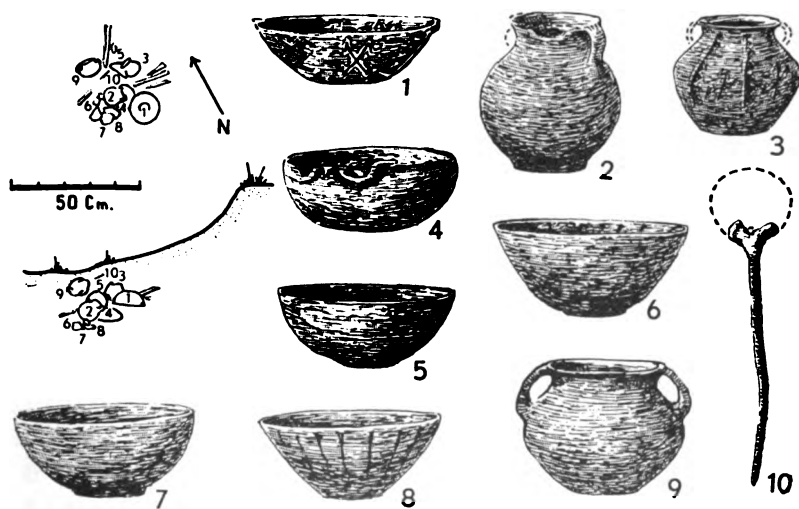
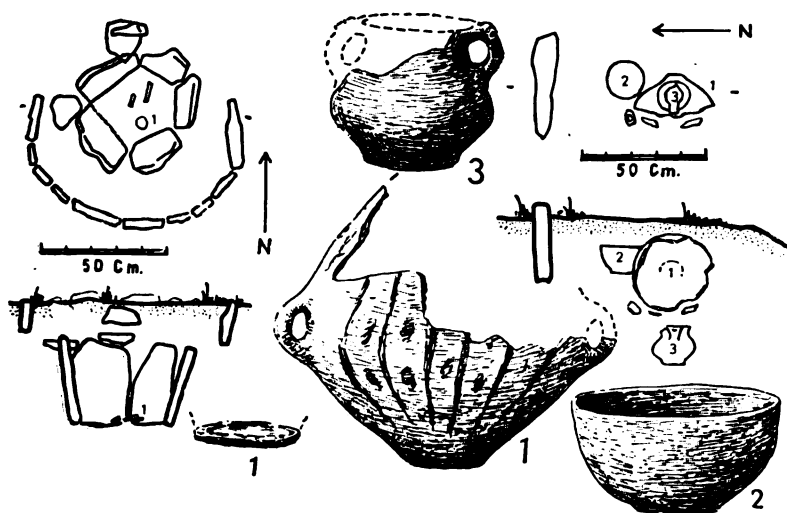


Fig. 30. Grave 16, Markopata. 10 is half-size, the rest 1/6.

All vessels were found near surface within a circle having a radius of about 30 cm. About 15 cm below surface was another topu fragment. This, however, got lost in transit. The first vessel found was a bowl (1) lying bottom up. The ware is brown, both sides covered with a more reddish coating with black-and-white painted decoration. This decoration consists partly of a cross design, partly of vertical lines of triangles or cross lines. White was used as thin edge lines for the black decorative designs. Below the rim on the outer side there is a small boss on either side. To the west of this bowl there was an olla-shaped vessel with one ear knocked off and lying on its side, its opening turned towards the east (2). Above the well-preserved ear there are some incised lines right across the rim. The ware is greyish-black, the outer side polished. North of this vessel there was a smaller one of the same shape but having both ears knocked off (3). Traverse lines above the ears are missing here. Ware, surface treatment, painted decoration and coating are identical with Bowl 1. The polishing, however, is better than on that bowl. At the level of Vessels 1—3 another bowl was lying bottom up (4). This is of brown ware and has a brown coating which, however, covers only the portion just below the rim on both sides. Below the rim on the outer side there is a boss-like protuberance on either side, and on both sides of this a design of semi-circles in black-and-white. Probably the whole decorative motif represents a face. Below Vessel 3 a third bowl was standing on edge with its opening towards the west (5). The ware of this bowl is brown, the surfaces polished. At the same level, but below the vessels thus far found, there were several sherds which could be reconstructed as the vessels shown as 6—8. The ware of these vessels is light-brown, the surfaces polished. On the inner side of Bowl 6 and the outer side of Bowl 8 there is painted decoration in the form of vertical lines in red-brown. The olla shown as 9 was found farthest north and nearer the surface. The ware is yellowish-brown, the sides polished. Skeletal remains lay everywhere in the earth among the vessels and the sherds. Of the skeletal remains only a few, however, are shown in the sketch Fig. 30. In the north a femur fragment was lying horizontally. Beside it lay the fragment of a lower jaw. North of Bowl 1 another femur fragment, a tibia and other extremital fragments were lying almost horizontally. A small fragment of a femur (?) was found northwest of Bowl 2. All these skeletal remains represent an adult, probably male.

Neither as to shape nor in the workmanship of the painted decoration do any of these vessels show any direct Tiahuanaco influence.



Figs. 31—32. Graves 17 and 18, Markopata. 1/4.

The reddish coating and the lines of the triangles on Vessels 1 and 2 would be all to indicate such influence. The semi-spherical shape of the bowls rather suggests a post-Tiahuanaco period.

Grave 17 (Fig. 31)

Slab cist on the cultivated flat hill top where Graves 16—21 had been examined. The position of this cist was marked by a semi-circle of stones placed edgewise, the tallest reaching about 10 cm above surface. All slabs in this semi-circle were not visible before excavation. The cist actually occupied the centre of the semi-circle.

In the earth between the semi-circle and the cist there were some large stones. All cist slabs leaned slightly outward. In the north were three large stones just outside the wall slabs. Originally these stones were probably part of the wall. At bottom level were two small femur fragments of an adult and a bottom sherd of probably a small brown-ware olla (1).

Grave 18 (Fig. 32)

The grave here described was discovered as result of test-digging 7 m east of Grave 17.

Before excavation only a small slab placed edgewise in the north indicated the existence of a cist here. It had been damaged, apparently as result of cultivation or owing to erosion.

First a large sherd of an aryballus-shaped vessel was found. A little later the bottom part of this vessel (1) was found lying on its side with its opening towards the west, sherds of its bulbous part resting in the filling. The ware is yellowish-brown, the surface polished, the decoration on the outer side done in dark-brown. Immediately northeast of this vessel a bowl was standing (2). The ware is brown, the sides polished. Under these vessels a fragmentary olla (3) was standing. The ware is brown with polished outer side. The preserved ear probably had a small boss at the top with crosswise incised lines.

The shape of Vessel 1 seems influenced by the Inca aryballus, if anything. The decoration, too, on this vessel indicates that the grave is of late date.

Grave 19 (Figs. 33—37)

Slab cist centrally located on the flat cultivated crest of the ridge. Before excavation the wall slab in the southwest was slightly visible on the surface. The surface above the grave was much depressed, suggesting looting. However, as to residue, it proved on the contrary the richest of all those excavated in the Mollo region.

One afternoon excavation at Markopata had to be discontinued owing to heavy rain. On the way back to Mollo the weather suddenly cleared up just as we passed by the grave here described. One of my Indians pointed at the visible slab, indicating that now when the weather was clearing, excavation at this spot might be worth while. Not expecting anything special, I started an excavation to be completed before dark. Once started, this job couldn't very well be left unfinished lest some stranger might start digging for gold. An exceptional number of objects coming to light, what little daylight remained did not permit levelling of each vessel and sketching it in on a map. Instead, the position of each vessel and of the large sherds or heaps thereof was carefully noted. However, marking the position of skeletal remains was not feasible. The large number of vessels also added to the difficulties. As the digging went deeper a horizontal level could be maintained to some extent. Hence the sketches in Fig. 33 are based on these diary notes. However, in preparing the sketches, and in order to make matters clearer, it was found necessary to enlarge the residual stratum by 25 cm on the vertical sketch in Fig. 32, but wall slab sizes are accurate.

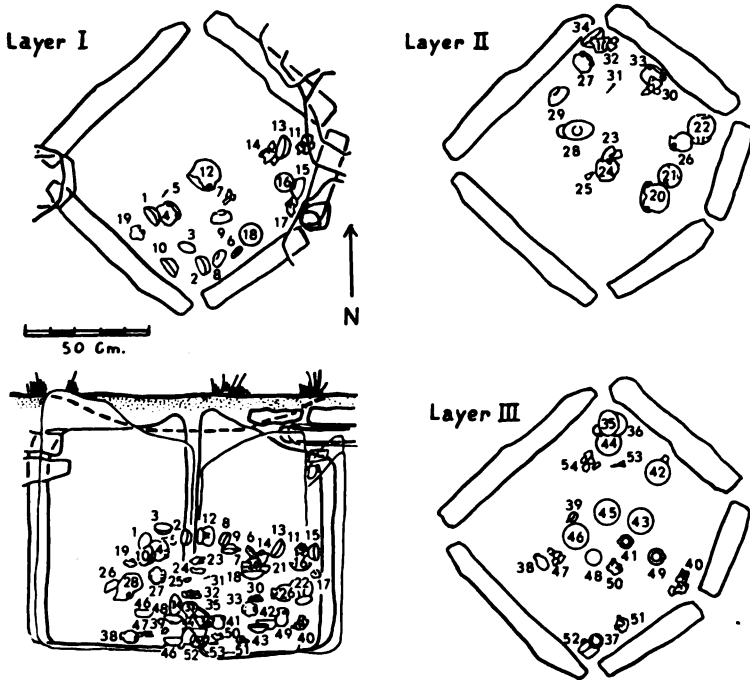


Fig. 33. Grave 19, Markopata.

When noting the position of the various objects, the difficulty of maintaining a horizontal level may also have caused an insignificant shift vertically.

Almost at the start some olla sherds were found about 25 cm under the surface depression marking the cist. Apparently they had been washed into it by the rains. At a depth of approximately 45 cm in the centre, cranial remains and bowl sherds were found. Additional skeletal remains and olla sherds lay in the southern corner.

Layer I (Figs. 33—34)

1. Bowl of greyish-brown ware, the core black, with dark spots on the surface after firing. Polished sides and decoration in red-brown on the inner side. It was found 20 cm from the centre of the south-western wall slab, lying on its side with its opening towards the slab.

2. Crudely made bowl of greyish-brown ware with reddish coating. Only traces of black painted decoration remain on the outer side. The

Layer I

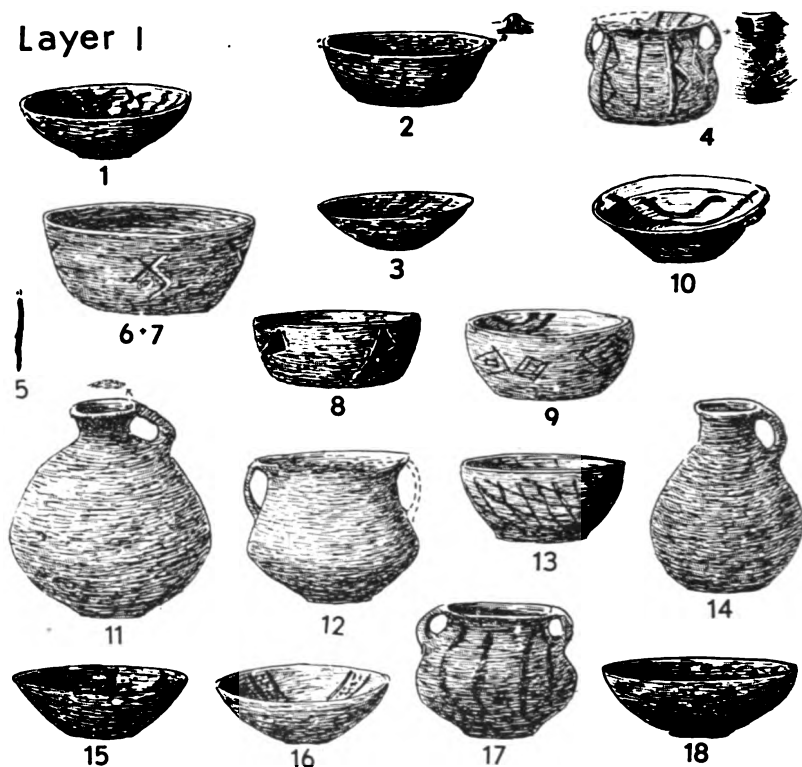


Fig. 34. Grave 19, Markopata. 5 is $\frac{1}{3}$, the rest $\frac{1}{6}$.

rest of the coating on this side has also disappeared. On either side, level with the rim, there is a boss. On the preserved boss there are incised lines on the upper side. The bowl stood leaning 15 cm from the southern corner with its opening towards the west.

3. Bowl of orange-yellow ware with a large black spot on the inner side after firing. Polished sides and decoration of irregular lines in dark-brown on the inner side. It was standing between Vessels 1 and 2, its opening leaning south.

4. Vessel of olla shape. The ware is brown with reddish coating on the outer side and on the inner side of the rim. Black-and-white painted decoration on both sides. The cross-shaped design with white edges under one of the ears is missing on the opposite side. Traverse black-and-white lines across the outer side of the ears and the inner side of the rim. The vessel was found under Bowl 1, lying on its side with its opening towards the centre.

5. Pin fragment, probably of a topu. Spectrum analysis showed it made of bronze. The tin content is about 10 per cent. The alloy further contains about 2 per cent silver and 1 per cent lead.

A tumbled-down wall(?) stone had damaged the following Vessels 6—9.

6—7. Bottom and rim sherds forming a bowl of red-brown ware with red-brown coating on the outer side and along the rim of the inner side. Traces of black-and-white painted decoration on the outer side. The bottom part was lying on its side near the middle of the slab in the southeast, the rim sherds scattered a little farther from the wall slab.

8. Bowl of light-brown ware with polished sides. On the outer side and along the rim it has a coating nearly the shade of the ware. On the outer side black-and-white decoration, on either side just below the rim a slight boss. The damaged bowl stood leaning towards south-east close by Bottom Sherd 6 but nearer the southern corner of the chamber.

9. Bowl of brown ware with somewhat more reddish coating on its well-polished sides. Black painted decoration on both sides. On the inner side the decoration consists of concentric semi-circles along the rim, on the outer side a design of concentric squares. This design is irregularly placed. Thus, on the side not shown here, there is only one of these designs. There may have been white paint between the semi-circles on the inner side. The bowl was found bottom up in damaged condition north of Bowl 8.

10. Bowl of greyish-brown ware and out-curving brim with broad black lines on the inner side. On the outer side under the brim there is a horizontal ridge boss with incised cross-lines. The bowl was found with its opening against the wall slab in the southwest near the southern corner.

11. Single-eared bulbous vessel. The rim has some incised cross-lines above the ear. The outer side fairly well-polished. The ware is greyish-brown with large dark spots on the surface after firing. This vessel is reconstructed from sherds scattered in the easternmost corner.

12. Olla of greyish coarse ware with traces of more reddish coating. It was lying in the centre with its opening towards the southwest.

13. Bowl of greyish ware with darker spots on the surface. Remarkably well-polished inner side. The surface of the inner side is almost greyish-brown with slightly dark spots. A mesh pattern in red-brown decorates the outer side; traces of similar decoration are also

found on the inner side. It was standing on edge about 10 cm from the eastern corner with its opening towards the centre.

14. Bulbous vessel of greyish-brown ware, almost orange-coloured, with darker spots on the polished outer side. Rather coarse ware and surface treatment. There may have been red-brown coating or decoration on the outer side. This single-eared vessel is reconstructed from sundry sherds, most of them found just west of Vessel 11.

15. Bowl of brown ware with polished sides. On the outer side large black spots after firing. Decorated on the inner side with broad lines radiating from the bottom. In the centre of the bottom on the inner side a small slight bulge. It was standing on edge with its opening close by the northernmost of the two wall slabs in the southeast.

16. Bowl of light-brown ware with darker spots after firing. Remarkably well-polished inner side. The painted decoration on the inner side done in dark brown. The decoration consists of a cross of double lines with dots between them. It was standing just under the preceding vessel.

17. Vessel of olla shape of greyish ware with polished outer side. Decoration in red on the outer side. This vessel was smashed, most of the sherds lying close by the southern point of the northern wall slab in the southeast, but has been completed by sherds from the nearby filling.

18. Bowl of greyish-brown ware with dark outer side and well-polished inner side. Dotted decoration in red-brown on both sides. Found standing by the southernmost of the southeastern wall slabs.

Layer II (Figs. 33 and 35)

19+50. Bulbous vessel with relatively wide opening and two horizontal ears, judging from their size intended for suspension of the vessel. The ware is orange-coloured, if anything. The outer side is well-polished. On this as well as on the inner side of the rim there is decoration in dark-brown. Of this vessel one large sherd lay near the middle of the wall slab in the southwest, another in the centre. As mentioned earlier, the scattering of the objects when making the cross-section in Fig. 32 and the difficulties in maintaining a horizontal level during excavation render the difference of the levels between the sherds as shown in the sketch larger than in reality.

20. Olla with damaged rim of grey ware and darker polished outer side. A few faint incised lines across the rim above each ear. It was

Layer II



Fig. 35. Grave 19, Markopata. 31 is 1/3, the rest 1/6.

lying on its side just north of Bowl 18 with its opening towards the west.

21. Bowl of brownish ware with well-polished sides, probably with coating of somewhat redder shade than that of the ware. On the outer side a few dark spots on the surface. The painted decoration on the inner side and the outer side is dark red-brown. In the bottom of the bowl there is a circle of the same colour. On the rim a rather broad, though low, boss. The bowl was found standing but in pieces just northeast of the preceding vessel.

22. Vessel of olla shape of brownish ware with well-polished outer side with black spots after firing. The painted decoration on the outer side is in red-brown. Traces of decoration of the same shade on the inner side of the rim. It was lying in the eastern corner bottom up at an angle pointing north.

23. Bowl of brown ware with polished sides and radiating red-brown lines on both sides. Found as sherds in the centre of the grave.

24-40. Vessel of olla shape of greyish-brown ware with reddish coating on the outer side and along the rim on the inner side. On the inner side of the rim there is decoration in white vertical lines, on the outer side black-and-white. On the outer side the coating is bounded some distance from the bottom by a dark, almost black, wavy horizontal line. The bottom fragment (24) was standing in the centre under Bowl 23. Most sherds (40) of the upper part — amongst others those with the ears — were found close by the joint between the two wall slabs in the southeast.

25 + 47. Kero of brown ware with rather well-polished outer side, although of crude shape. Reddish coating on outer and on top of inner side. Decoration in black, perhaps also white on the outer side, but doubtful. A large rim fragment (25) was found in the centre close by the bottom part of Vessel 24, while most of the other sherds were at bottom level slightly more to the southwest. As regards the scattering of the sherds the same is to be observed as for Vessel 19+50.

26. Bulbous single-eared vessel of brown ware with a few spots on the polished outer side after firing. It was lying on its side with its opening pointing west close by Vessel 22, 15 cm west of the easternmost corner. Red coating or decoration on the outer side?

27. Olla of greyish-brown ware with black inner side and red coating on the outer side. Across the rim in front of the ears a few painted lines. The vessel was lying on its side with its opening turned northward close by the northwestern wall slab, 15 cm from the northwestern corner.

28. Spoon or bird-shaped vessel of brownish ware with polished outer side, showing darker spots on the surface after firing. The vessel was found bottom up, its opening pointing west, 20 cm from the centre of the northwestern slab.

29. Bowl of greyish-brown ware with a few darker spots on the polished surface after firing. On the inner side painted decoration in white and black, almost obliterated. The inner side exceptionally well preserved. A large section of the rim is missing. This sherd may have got lost in transit. The bowl was found bottom up among some fragments of vertebral bones between the shoe-shaped Vessel 28 and the northwestern wall slab.

30. Shallow bowl of dark greyish ware with polished sides. It was lying on its side with its opening on the inner side. It was found in pieces near

the centre of the northeastern wall slab; the sherds farthest away were lying 15 cm from the wall slab.

31. Pin of bronze with head shaped like a human head. Spectrum analysis showed it made of an alloy containing, besides copper, about 10 per cent tin, 2 per cent silver and 1 per cent lead.

32. Fragmentary olla of light greyish-brown ware with well polished outer side and red coating which, for purposes of decoration, leaves the lighter colour of the ware as parallel vertical lines, crosses, etc. However, negative designing here is not likely. On the outer side of the ears there is a mesh pattern of lines incised before firing. The sherds were scattered in the northern corner slightly below the level of fragmentary Bowl 29 and Bronze Pin 31.

33. Small olla of brown ware with reddish coating also covering the inner side of the rim. Here and on the outer side there are traces of decoration in black with fine lines. The outer side is poorly polished under the coating. It was lying near the centre of the slab in the northeast, its opening against the wall slab.

34. Bowl of brownish ware with darker spots after firing on the polished sides. It was lying on its side in the northern corner, its opening against the northwestern wall slab.

Layer III (Figs. 33 and 36)

35. Bowl of brownish ware with red coating which, however, covers only the portion next to the rim. Black decoration on the outer side with traces of thin white boundary lines. The bowl was found in the northern corner atop Bowl 36.

36. Bowl of brownish ware with polished sides. A large part of the bowl is darker. Painted decoration in red on the inner and the outer side. The bowl was found just under Bowl 35.

37. Small single-eared bulbous vessel of brown ware with red coating. It lay bottom up in the southern corner.

38. Small single-eared bottle-shaped vessel, ear and rim knocked off. Of greyish-brown ware with polished outer side, which has darker spots. It was lying on its side, its opening towards the northwest, 25 cm from the northwestern wall slab and 20 cm from the southwestern one.

39. Side-bowl of a flaring-sided bowl (cf. Vessel 44) with red-violet coating and decoration in black-and-white on the outer side. It lay 30 cm from the centre of the northwestern wall slab.

40. See 24.



Fig. 36. Grave 19, Markopata. 33 is 1/3, the rest 1/6.

41. Small olla of dark, almost black, ware with polished outer side and scarcely any bottom flattening. It was standing 5 cm to the east of the centre of the cist.

42. Single-eared semi-spherical bowl. On the side opposite the ear there is a cross with two crosswise incised lines below the rim. Of brownish ware with polished sides. On inner and outer sides, also in the interior, an irregular broad linear decoration in a reddish tint. It was standing near the centre of the northeastern wall slab, its ear pointing to the northeast.

43. Bowl of greyish-brown ware with darker spots after firing and polished sides. It was found to the southwest of Bowl 42, although on a slightly lower level.

44. Long-sided bowl with smaller side-bowl of rather coarse ware, crudely made and with a more reddish coating on the

outer side and at the rim on the inner side. Midway on the inner side a narrow horizontal groove. Decoration in black-and-white on the outer side, in black on the inner side of the large bowl. It was found at bottom level in the northern corner.

45. Bowl of greyish-brown ware with darker spots and polished sides. It was standing some centimetres north of the centre of the cist.

46. Bowl of almost black ware with polished sides having lighter spots. It was found west of Bowl 45 and about 35 cm from the slabs in the northwest and southwest.

47. See 25.

48. Bowl of greyish-brown ware with darker spots after firing and with polished sides. Dotted decoration on both sides in red-brown. It was standing 30 cm from the centre of the southwestern wall slab and at the same level as Vessel 49.

49. Single-eared bulbous vessel of greyish-brown ware with darker spots after firing on the polished outer side. It was found at the same level as Vessel 48, 25 cm from the joint between the two slabs, standing among some extremital bones in the southeast.

50. See 19.

51. Fragmentary olla of brown ware with red coating on the outer side and on the inner side along the rim. The largest sherd lay near the centre of the southernmost wall slab in the southeast.

52. Flaring-sided bowl with smaller side-bowl of brown ware with polished sides and decoration in brown. It was lying on its side in the southern corner with its opening towards the northwest.

53. Topu fragment, by spectrum analysis shown to be of bronze containing about 10 per cent tin, 2 per cent silver and 1 per cent lead. It was found just south of Bowl 44.

54. Kero with rim boss of brown ware with rather well-polished outer side. Shape very crude. Small horizontal groove midway on the inner side and corresponding to a faint ridge on the outer side. Reddish coating on the outer side and along the rim on the inner side. Decoration in black-and-white, the white forming a horizontal line between two pairs of black lines. Found smashed west of Topu 53.

Besides the vessels described above a number of stray sherds were found among these vessels, especially in the uppermost stratum. Some of these sherds fitted in when completing the above-mentioned vessels that were found broken. There remain, however, about 100 sherds representing at least two large vessels of olla type. In addition, three



Fig. 37. Grave 19, Markopata. Bowl sherds 1 + 4.

bowl sherds (Fig. 37: A—C) were found. Of these, Sherds 37: A and B are of light-brown, almost orange, ware. The sides are polished, the decoration in dark red-brown. On the inner side there is a red coating. Sherd C, which is of the same ware, shows an exceedingly delicate surface treatment — probably there is a coating of the colour of the ware — as well as decoration in black on the inner side.

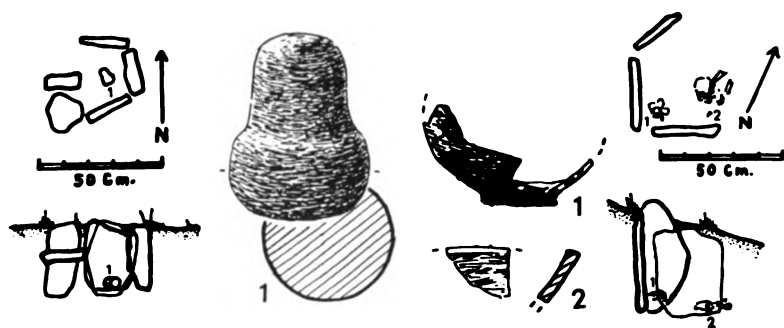
The skeletal remains show that at least two individuals had been buried in this grave, one an adult and the other an adolescent. A lower-jaw fragment with an erupting wisdom tooth, amongst others, represents this latter individual.

Obviously, the western part of the cist is the spot where the dead were placed. The incidence of skeletal remains of at least two persons and the fact that skeletal remains were found scattered among the funerary vessels indicate that the contents of the grave had been disturbed. This also accounts for the fact that several of the vessels were in pieces. Also, of a flaring-sided bowl with smaller side-bowl only Side-bowl 39 was found at bottom level.

Probably the grave was used for burial on at least two different occasions. Thus the vessels from bottom level showing Tiahuanaco influence (Vessels 44, 52, 54) — they correspond to the kero and flaring-sided bowl of Central Tiahuanaco — may relate to the earlier burial. This also applies to Vessel 25 + 47 from the middle stratum, a vessel which no doubt may be counted in among those from the bottom level since most of the sherds were found at this level.

As to workmanship, Vessels 4, 6 + 7, 8, decorated in black-and-white, from the surface stratum, and Vessel 24 + 40 from the middle stratum, as well as the Tiahuanaco-influenced vessels, form an isolated group. However, the surface stratum in which these bowls were found makes me think that they belong to the later burial, or they might belong to a third burial having taken place between the two aforementioned (cf. p. 9 + 11).

As regards workmanship, the rest of the vessels representing the later burial form, in fact, a homogenous group.



Figs. 38—39. Graves 20 and 21, Markopata. 1/4.

Grave 20 (Fig. 38)

Slab cist on the top of the ridge southwest of Grave 19. All three wall slabs, preserved in situ, and another in the west, which clearly had been dislodged from its original position, were visible on the surface prior to excavation.

During the excavation a slab was found lying horizontally to the west at a depth of 20 cm. This was probably a wall slab or fragment thereof. At bottom level close by the eastern wall there were a couple of sherds of a large olla, amongst others a bottom sherd of greyish ware with darker outer side. Here was also found a pestle (1) with butt end of fine-grained greyish-green rock having an exceedingly smooth surface. Since attainment of so much smoothness suggests rubbing rather than repeated pounding, the object may have been used more as grinding-stone than as a pestle.

Examination of the ground west of Grave 20 yielded a human atlas and bone fragments, possibly of a foetus, as well as traces of charcoal at surface 1.5 m from the cist.

Grave 21 (Fig. 39)

Slab cist between two fields on the gentle slope south of the crest where Graves 16—20 had been excavated. It was probably damaged during cultivation of the lower field to the east of it. Thus the cist lacks wall slabs in this direction. All three wall slabs preserved were visible on the surface before excavation.

At bottom level in the southwestern corner there was the bottom part of a small olla (1) of greyish-brown ware and with reddish coating. Farther to the east at the same level there was a bowl rim fragment of

similar ware but without coating (2). The diameter of its opening is about 15 cm. Here also the facial part, the frontal bone and fragments of the lower jaw and some extremital bones of an adult were found.

Graves 22—25

Grave 22 was located at the northern end of a once cultivated strip on the top of Pilkisani hill, forming the southernmost outcrop of the western ridge at Markopata. Here Graves 23—25 were also located.

Grave 22 (Fig. 40)

The position of this slab cist was marked by one of the two preserved wall slabs being visible before excavation by jutting up above the surface. Since there were no wall slabs in the south, and the vessels in the grave were smashed or incomplete, the grave presumably had been damaged during cultivation.

In the east near bottom level stood a bowl (1) of light-brown ware with reddish coating having traces of decoration in black. This red coating covers only the portion near the rim on the inner side. On the rim is a boss with traverse incised lines. In the centre at a slightly lower level, a bulbous vessel (2) was standing. The neck is missing. The ware is light-brown, the outer side well-polished, with black spots after firing. On the side there is a boss with two crosswise



Fig. 40. Grave 22, Markopata. 1/4.

incised lines. To this vessel probably belongs Sherd 5, being of the same ware but having a reddish coating. At bottom level there stood a flaring-sided bowl (3) of brown ware with red-brown coating and decoration in black on the outer side. Perhaps white once had formed part of the decoration on the outer side. On the inner side there is a slight horizontal groove about midway. Close by this bowl, and north of it, the fragment of an ear (5) was found. Here were also sherds of at least two separate vessels of olla type (4 and 6). Of one vessel there was a rim fragment with the fragment of a broad ribbon-shaped ear (6). The olla sherds were scattered at a level from about 25 cm below surface to near bottom. In the north, also lying horizontally, there were femur fragments and fragments of bones of some other extremities of an adolescent.

The flaring-sided bowl (3) shows distinct Tiahuanaco influence. The semi-spherical bowl (1), however, is a type generally held to be of later date.

Grave 23 (Fig. 41)

Slab cist on the western slope of the hill just below the top.

The roof slab covering the grave and placed horizontally lay 10 cm deeper than the bottom of Grave 24. Since the two graves were 50 cm apart, this may indicate that Grave 23 is older than Grave 24. If Grave 23 had been of later date, its placing there would not have been possible without damaging Grave 24. The fact that Grave 23 is older than Grave 24 is also confirmed to some extent by the vessels found in these graves. The obvious Tiahuanaco influence of Vessels 1 and 4 in Grave 23 is lacking in the case of Grave 24. Here Inca influence, mostly in the decoration, is encountered.

Above the roof slab there were some olla sherds (11). These sherds are of red-brown ware with darker outer side and with traverse incised lines just above the ear. The outer side is polished.

The cist was well filled with soft sandy earth. In the northeastern corner, at a depth of about 40 cm below the roof slab, was a flaring-sided bowl (1) of brown ware and with rather well-polished outer side, which also has a somewhat more red-brown coating and painted decoration in black-and-white. The workmanship of this vessel is better than that of any other in this grave. At the same level, between the centre of the grave and the southern wall, a bowl (2) was standing on edge with its opening towards the west. It is of brown ware with

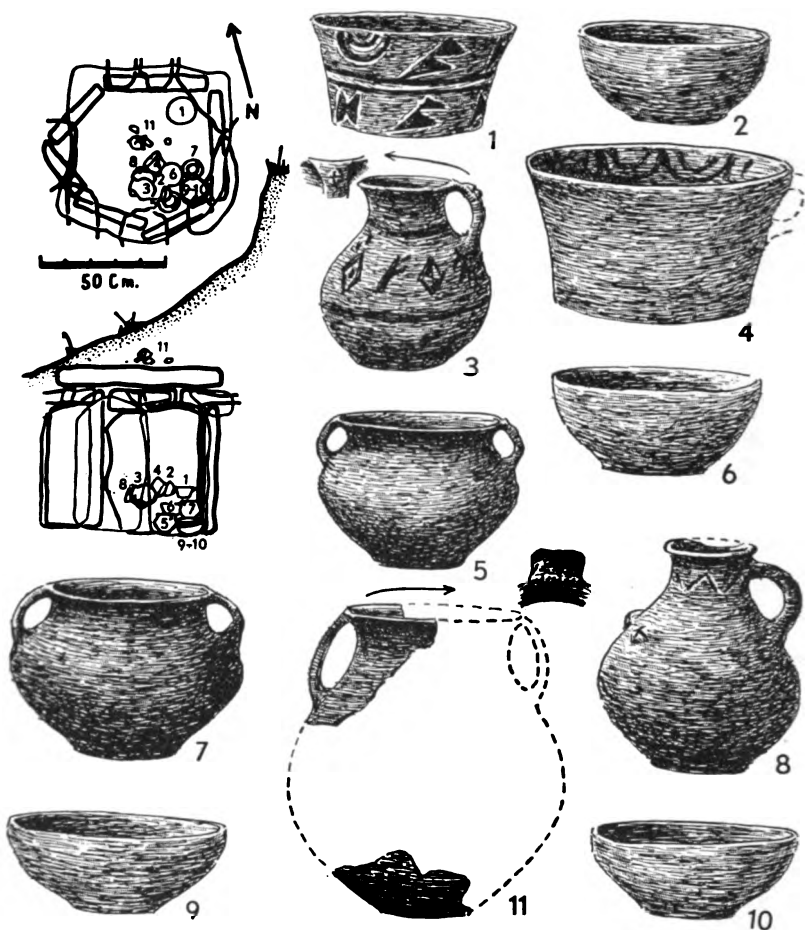


Fig. 41. Grave 23, Markopata. 1/4.

a heavy and more reddish coating. However, this coating is partly obliterated. The workmanship is rather crude. Immediately to the west of this bowl there was a single-earred bulbous vessel (3). The ware is brown, the outer side rather indifferently polished. It has a few dark spots after firing. The decoration is in black, and on the upper side of the ear there is a boss with a cross-shaped incision. In about the centre of the cist and at the same level lay a flaring-sided bowl (4) with two fractured surfaces on the outside. These may indicate that the vessel was provided with a smaller side-bowl (cf. for instance Figs. 56: 2 and 11) or by way of exception had been provided with one ear

only. The ware is brown with darker spots on the outer side after firing. The whole bottom part has this darker colour. Both sides are well-polished. Probably the outer side once had the same red-brown coating as the inner side. On the inner side there are some traces of painted decoration in dark red-brown on the coating. Originally it may have been black. At bottom level in the south an olla (5) was standing. The ware is greyish-black, and there are dark spots on the surface. The outer side is polished. Olla 7, found northeast of the latter vessel, is of more reddish ware, its outer side somewhat better polished. Between these two last-mentioned vessels of olla type, Bowl 6 was found standing and Bowls 9—10 standing one inside the other. They are of brown ware with darker spots on the surfaces and polished sides. The single-eared bulbous Vessel 8 is of reddish-grey ware and has darker small spots on the fine-polished outer side. On the neck there is an incised horizontal angular line, and on the opposite side of the ear two bosses with incised crosses. This vessel was found slightly south of the centre of the grave and at the same level as Vessels 1—4, lying on its side with its opening towards the west.

As already pointed out, Vessels 1 and 4 show by their shape a distinct influence from the flaring-sided bowl type characteristic of Central Tiahuanaco.

Grave 24 (Fig. 42)

As stated, this slab cist was located on the same slope as the preceding, although 50 cm more to the south. As also pointed out, the roof slab of Grave 23 lay 10 cm deeper than the bottom level of Grave 24, for which reason, as we have said, Grave 23 can hardly have been constructed without damaging Grave 24. Also, the vessels in the grave here described indicate that it is of a date later than Grave 23.

One of the wall slabs was visible on the slope before excavation. In the filling above bottom level slightly west of the centre of the grave, a small vessel of olla type (1) was lying on its side with its opening towards the west. The ware of this olla is greyish-brown with darker spots on its polished outer side. In the same position nearer the western wall slab was Bowl 2, which, as to ware and surface treatment, is similar to the vessel first mentioned. On the rim there is a faintly marked boss. Close by the eastern wall a small globular vessel (3) was lying on its side, its opening towards the south. Judging from its small ears, it was meant to be suspended. One ear is knocked off. The ware is brown, the outer side covered with a fine violet-red coating with

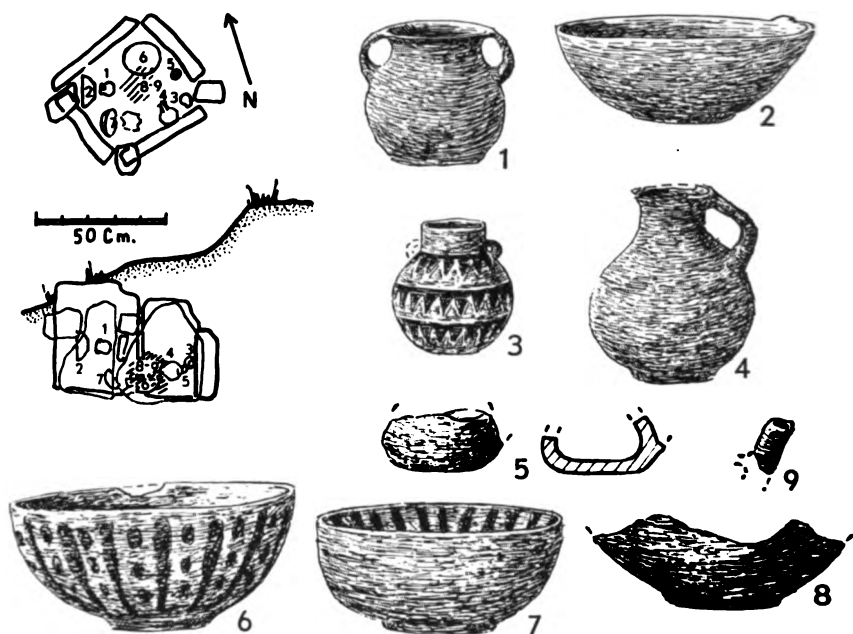


Fig. 42. Grave 24, Markopata. 1/4.

painted decoration in black-and-white. Near the latter vessel lay a single-eared bulbous vessel (4) with its bottom against the southern wall slab, its opening towards the centre. The ware is greyish-brown, having some darker spots on the polished outer side. Close by the eastern wall slab there was a bottom sherd (5) probably representing the same vessel as Sherd 9. Judging from a fractured surface near the bottom, it had probably had an ear or protuberance of some kind. The surface, like the ware, is coarse. There were two bowls at bottom level, one (6) standing in the north, the other (7) lying on its side close by the western wall, its opening towards the east. Both bowls are of light-brown ware, almost orange-coloured, with darker spots on the surface after firing. The painted decoration on the outer side of Bowl 6 and on the inner side of Bowl 7 is done in dark red-brown. On Bowl 7 the decoration on the inner side consists of lines radiating from the centre of the bottom. In the centre of the grave lay scattered fragments of the bottom part of an olla of greyish-brown ware (8) and one fragment of a drinking-tube of brownish ware (9). Possibly this sherd and Sherd 5 represent the same kero provided with a drinking-tube. Probably

these two fragments came into the grave accidentally. At bottom level in the southern part were cranial remains of an infant. The fontanels had not ossified, and the molars preserved on a jaw fragment were milk teeth. The cranium had been deformed by the earth pressure.

The vessels from this grave suggest late manufacture. This applies especially to Vessel 3, where the triangular decoration shows influence from the Inca geometric style.

Grave 25 (Fig. 43)

This grave was located on the western slope of the ridge, immediately below the crest. The flat roof slab measuring 50 by 35 cm was partly visible before excavation. It did not cover the whole opening of the grave. The opening had a diameter of 40 cm. Thus, between the roof slab and the eastern wall, there was an opening blocked with two small stones wedged in between.

The upper part of the grave was constructed of one or two rows of rough stones placed horizontally one on top of the other. The floor was dug out in the earth. In the filling there were some quite large stones which may have formed the wall foundations. About 40—50 cm under the roof slab were two femur fragments, one in a slightly leaning position, this perhaps indicating that the deceased had been buried in sitting posture with his knees drawn up to the chin.

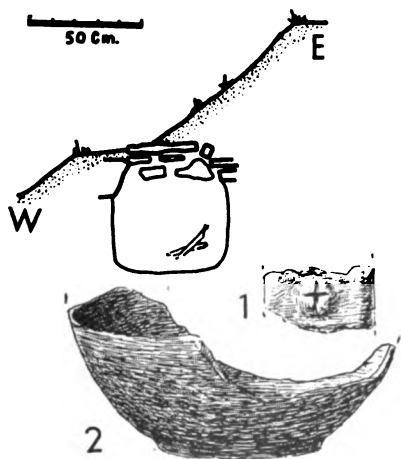


Fig. 43. Grave 25, Markopata. 1/4.

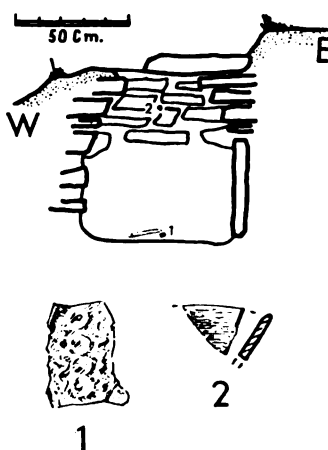


Fig. 44. Grave 26, Markopata.
1 is natural size, 2 is 1/4.

Immediately outside the grave opening, olla fragments 1 and 2 were found. They scarcely belong to Grave 25. The ware of both fragments is greyish-brown, the surfaces polished and slightly darker on the outer side. On the upper side of the fragment of the ear there is a boss with cross-shaped incision.

Grave 26 (Fig. 44)

This grave was located on the western slope immediately below the crest of the southernmost hill of the eastern ridge of Markopata. Some scattered slabs and fragments of human bones indicated that a grave had been destroyed here. These discoveries prompted a closer inspection, whereby two horizontal slabs were found near the surface about 50 cm farther north, later proving to be the roof slabs of another grave. They did not cover the entire opening of the grave. Thus, to the west, a semi-circle of stone was revealed almost immediately.

The grave was all filled up with earth of a darker tint than that of the surrounding soil. Only the upper part of the grave had walls of rough slabs placed horizontally one on top of the other. In the east at bottom level there was an upright slab. The filling between some horizontal wall slabs in the west was very deep. However, the greater part of the bottom lacked wall slabs. About 20 cm below the roof slab, there was a rim fragment of a bowl or kero of brown ware with polished sides (2). In the earth there were also some llama bones. A partly charred llama bone was found at bottom level near the western wall. In the centre at the same level there lay horizontally a fragmentary femur and a human humerus and close by the northern wall a small gold-leaf ornament with hole for suspension (1). On the gold-leaf there is a vertical line of four circles, and on either side two snake-like figures. This is an enchased ornament. Owing to an oversight this object was not subjected to spectrum analysis. The bone fragments show that an adult, judging from the slender bones probably a woman, had been buried here.

Grave 27 (Fig. 45)

Slab cist in the centre of a flat strip between the western and the eastern crests of the Markopata ridge. Before excavation several of the wall slabs of the grave were visible on the surface.

In the upper stratum there were some llama bones and large stones, these probably from the wall. About 30—40 cm below surface in the west, two femur fragments of an adult were lying horizontally. Simul-

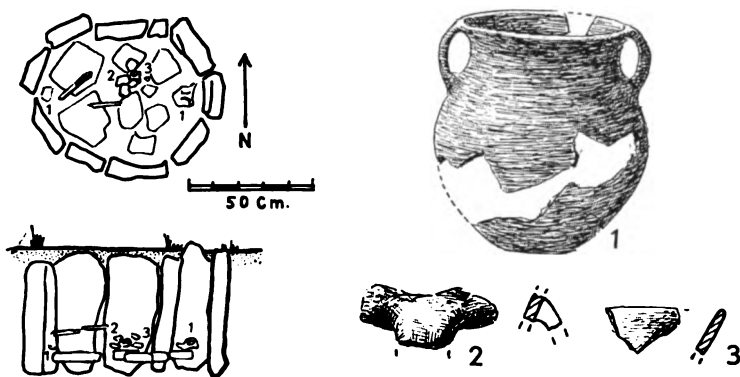


Fig. 45. Grave 27, Markopata. 1 is 1/6, 2-3 are 1/4.

taneously some olla sherds were found. Close by the eastern wall at a somewhat deeper level there was a large olla rim fragment with ear. In the centre there were additional fragments, amongst others a bowl rim fragment (3) with a rim diameter of 15—20 cm. The ware is red-brown, the surfaces well polished, the coating of the same shade as the ware. About 10 cm deeper there was a horizontal layer of rough slabs of varying sizes, which may have been the floor. This floor is indicated in the sketch in Fig. 45. Between the floor slabs there were also some olla sherds.

On re-examination of the collection, an almost complete vessel (1) was reconstructed from the olla-type sherds. The ware is greyish-brown, the outer side almost black. On the inner side of the rim the coating is red.

Among remaining olla-type sherds from the centre of the grave there is one with an ear fragment (2).

Grave 28 (Figs. 46—48)

During reconstruction of the Ayata-Mollo road into a highway some years prior to this examination, a number of graves were come upon along the Markopata hill slope towards Mollo. My excavations took place in the rainy season, work thereby being often impeded. Landslides due to rains had also destroyed the road in several places. At that time a cist wall slab was laid bare just below the ridge, evidently one of those already discovered in course of the original road construction. Examination showed that this cist, by way of exception, was square, this prompting further exploration. According to statements made, the graves



Fig. 37. Grave 19, Markopata. Bowl sherds. 1/4.

bowl sherds (Fig. 37: A—C) were found. Of these, Sherds 37: A and B are of light-brown, almost orange, ware. The sides are polished, the decoration in dark red-brown. On the inner side there is a red coating. Sherd C, which is of the same ware, shows an exceedingly delicate surface treatment — probably there is a coating of the colour of the ware — as well as decoration in black on the inner side.

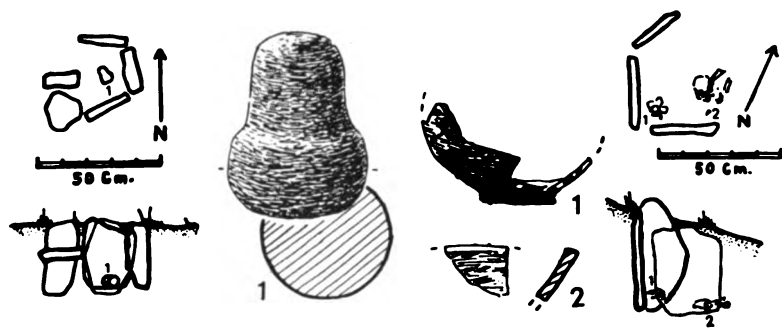
The skeletal remains show that at least two individuals had been buried in this grave, one an adult and the other an adolescent. A lower-jaw fragment with an erupting wisdom tooth, amongst others, represents this latter individual.

Obviously, the western part of the cist is the spot where the dead were placed. The incidence of skeletal remains of at least two persons and the fact that skeletal remains were found scattered among the funerary vessels indicate that the contents of the grave had been disturbed. This also accounts for the fact that several of the vessels were in pieces. Also, of a flaring-sided bowl with smaller side-bowl only Side-bowl 39 was found at bottom level.

Probably the grave was used for burial on at least two different occasions. Thus the vessels from bottom level showing Tiahuanaco influence (Vessels 44, 52, 54) — they correspond to the kero and flaring-sided bowl of Central Tiahuanaco — may relate to the earlier burial. This also applies to Vessel 25+47 from the middle stratum, a vessel which no doubt may be counted in among those from the bottom level since most of the sherds were found at this level.

As to workmanship, Vessels 4, 6+7, 8, decorated in black-and-white, from the surface stratum, and Vessel 24+40 from the middle stratum, as well as the Tiahuanaco-influenced vessels, form an isolated group. However, the surface stratum in which these bowls were found makes me think that they belong to the later burial, or they might belong to a third burial having taken place between the two aforementioned (cf. p. 92 ff)

As regards workmanship, the rest of the vessels representing the later burial form, in fact, a homogenous group.



Figs. 38—39. Graves 20 and 21, Markopata. 1/4.

Grave 20 (Fig. 38)

Slab cist on the top of the ridge southwest of Grave 19. All three wall slabs, preserved in situ, and another in the west, which clearly had been dislodged from its original position, were visible on the surface prior to excavation.

During the excavation a slab was found lying horizontally to the west at a depth of 20 cm. This was probably a wall slab or fragment thereof. At bottom level close by the eastern wall there were a couple of sherds of a large olla, amongst others a bottom sherd of greyish ware with darker outer side. Here was also found a pestle (1) with butt end of fine-grained greyish-green rock having an exceedingly smooth surface. Since attainment of so much smoothness suggests rubbing rather than repeated pounding, the object may have been used more as grinding-stone than as a pestle.

Examination of the ground west of Grave 20 yielded a human atlas and bone fragments, possibly of a foetus, as well as traces of charcoal at surface 1.5 m from the cist.

Grave 21 (Fig. 39)

Slab cist between two fields on the gentle slope south of the crest where Graves 16—20 had been excavated. It was probably damaged during cultivation of the lower field to the east of it. Thus the cist lacks wall slabs in this direction. All three wall slabs preserved were visible on the surface before excavation.

At bottom level in the southwestern corner there was the bottom part of a small olla (1) of greyish-brown ware and with reddish coating. Farther to the east at the same level there was a bowl rim fragment of



Fig. 46. Grave 28, Markopata, seen from the northeast after completion of the examination.

discovered here during the construction work had been refilled and covered over with earth. Consequently there were definite prospects of finding the funerary requisites here reasonably intact.

The surface layer in this cist consisted of earth containing stones and bone fragments with some traces of charcoal. A little later, sherds of greyish, greyish-brown or almost black ware were also found, representing two different types of vessels, an aryballus-shaped fermentation or water jar (1) and a vessel of olla type (2). These two types of vessels are represented also by sherds from a greater depth. It proved impossible to reconstruct any complete vessel from these sherds. In the top stratum there were a total of about 200 such sherds and 20 fragments of animal bones, probably llama. It would seem that the earth in the upper part had been added during construction of the road. Rim and bottom profiles of olla sherds from the surface stratum are shown as 4 and 5. From the same stratum comes also the bowl sherd shown as 3, this being red-brown ware. It has a whiteish coating with decoration in black and red-brown on the inner side. This sherd suggests Inca. The wavy line is black. Finally, from the surface stratum comes also the muller fragment shown as 6. The rock is fine-grained and dark greyish in colour.

In the southeastern corner at a depth of 30 cm there was a solid layer of about 10 cm scorched earth. Near the centre of the northern wall a

fragmentary cranium was facing the northwest, and close by this a bowl sherd of greyish ware with painted decoration in red-brown on the inner side (14), this side particularly well polished. In the southwestern corner there were additional cranial remains of an adult, in the centre the small bowl shown as 18. This is of greyish ware with painted decoration in red-brown and may have had a white coating on the inner side. The sides are polished, but the workmanship is crude, especially as regards the shape. About 40 cm from the centre of the western wall there was a big bowl fragment (17) filled with charcoal and ashes. The ware is greyish and the sides polished. When found, the outer side had a layer of soot. Among the sherds collected there may be some of another vessel of the same appearance. In the southeastern corner there were a couple of sherds of a large aryballus-shaped vessel, among them one with a very large ribbon-like ear. This sherd corresponds to the one shown as 9.

In the east a larger toppled-over slab, 50 cm wide, was leaning its upper edge against the eastern wall slab. Above this leaning slab there was a stone mortar with a shallow depression. Both slab and mortar are marked with broken lines in Fig. 47. The way the eastern wall slab is tilted towards the grave, it is highly probable that the slab found in the grave originally belonged to the wall, but was pushed into the grave together with the mortar by the powerful "bulldozer" used in the construction work. In the same manner the vessels belonging to this part of the grave may have been smashed, amongst others the olla of which sherds were found in the southeastern corner. One of the sherds found here corresponds to that shown as 11. Here was also found the llama jaw shown as 20 with traces of wear on the edge downwards to the right as the object is shown in Fig. 48. The llama jaw was probably used as a "scraper" or "matrix" in the manufacture of bulbous vessels. More sherds of ollas or aryballus-shaped vessels of greyish ware were scattered in the eastern part of the cist.

In the centre were some rib and humerus fragments, probably from the individual whose cranium was found near the centre of the northern wall. At a level somewhat lower than that of these cranial remains near the wall in the south there was also the deer antler shown as 21. This antler has been determined by Johannes Lepiksaar, assistant Curator of the Natural History Museum, Gothenburg. Below and near the antler was the olla sherd with ear shown as 11. It is of greyish-brown ware and has polished outer side.

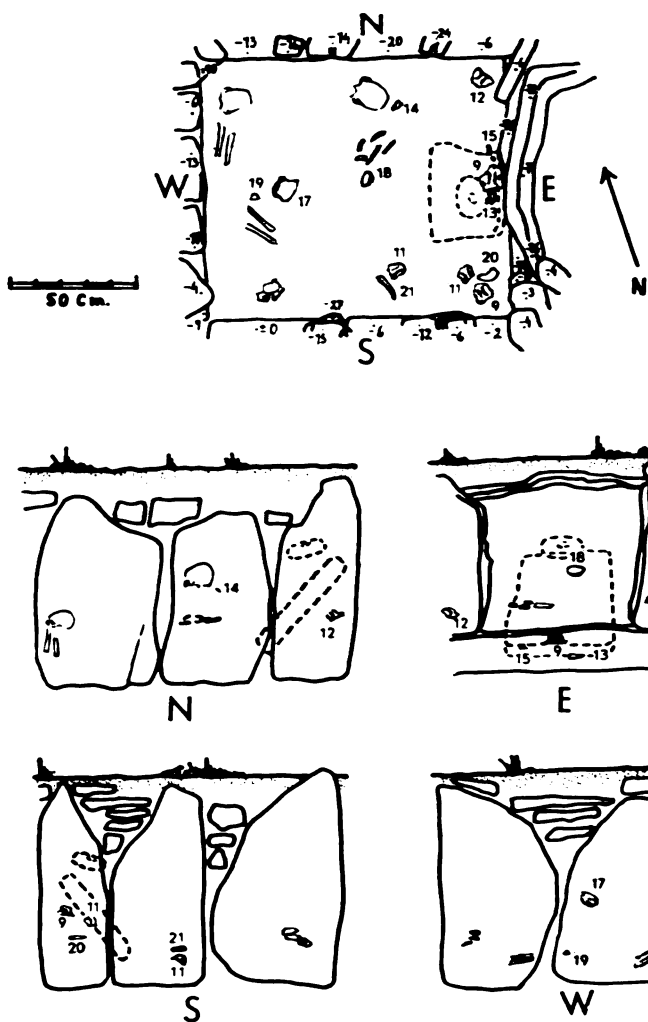


Fig. 47. Grave 28, Markopata.

Another slab, considerably smaller, was found under the top of the toppled slab in the east. This is not indicated in Fig. 47. Under it there was a large sherd of a water jar or possibly olla, part of it shown as 9 in Fig. 48. A hole in the wall of the vessel near the ear had apparently been closed with some resinous material. Here the sherd shown as 15 in Fig. 48 was also found. The ware is brownish, and the outer side,

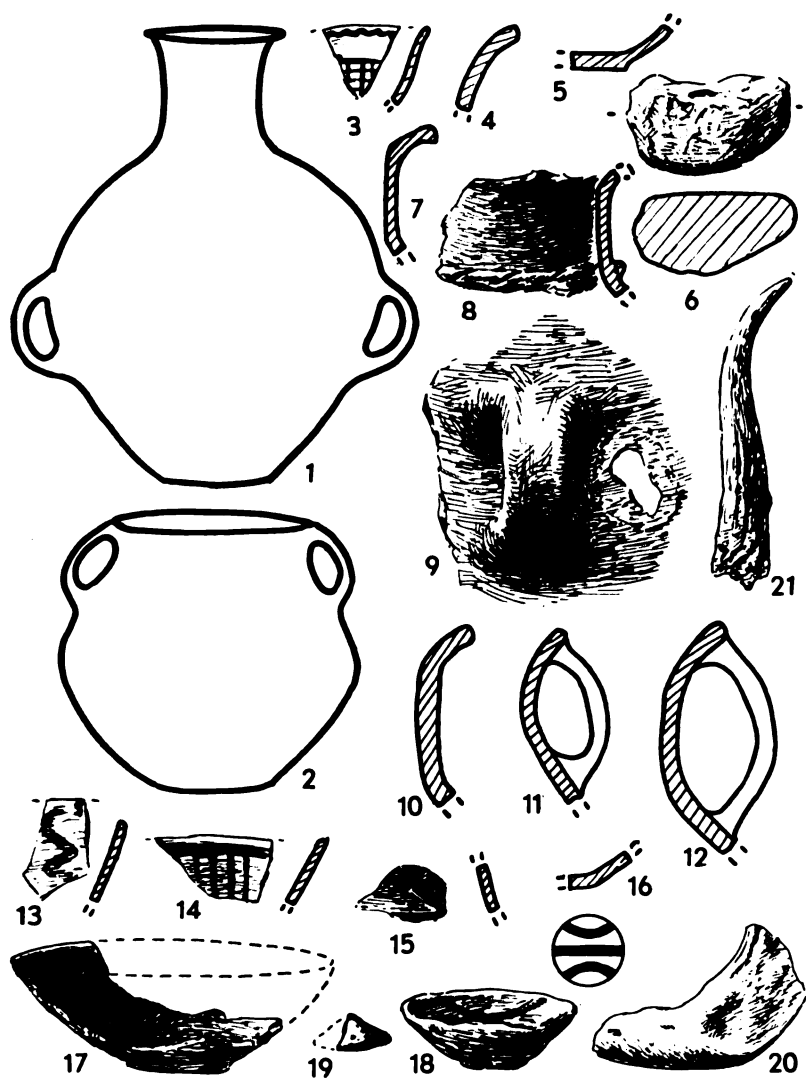


Fig. 48. Grave 28, Markopata. 1-2 about 1/6, the rest 1/4.

decorated in black-and-white, is covered with a more reddish coating. In the northeastern corner there was a rim fragment of an olla (12) with a large ribbon-shaped ear. At bottom level in the east below the toppled slab there was also the bowl fragment shown as 13. It is of orange-brown ware with painted decoration in red-brown on the inner side.

North of but slightly lower than the cranial remains in the southwestern corner, there were two femur fragments. Their position indicates that the deceased was placed close by the western wall. Here the fragment of a spindle-whorl (19) of greyish ware was also found. The cranium of a third individual lay in the northwestern corner together with extremital bones of the latter, slanting vertically and parallel with the western wall. The cranium, which was deformed by the earth pressure, lay with skull upwards facing the west. At about the same level as the base of the wall slabs there were some smaller slabs placed horizontally; they are not indicated in the sketch maps of the grave in Fig. 47. These slabs may be the floor of the grave. However, they are probably tumbled-down wall slabs.

The excavation nearly finished, a slab placed horizontally under the eastern wall slab came into view. The way the centre wall slab, split from top to bottom, was placed behind the two slabs on either side, this horizontal bottom slab forms a sort of threshold or doorstep in front of the centre wall slab. As pointed out above, the top of the large split centre slab was leaning inward over the grave. The side slab in the north had also been pushed in towards the grave, which, coupled with the tumbled-down slabs in the grave, indicates that the "bulldozer", pushing from the east, demolished the eastern side of the grave.

The construction of the cist is seen in Figs. 46—47. Any vaulting by smaller stones could not be ascertained; the wall, also at the top, where to a great extent it was made of rough slabs placed one atop another, was vertical in those spots where it had not been damaged.

In the course of a later examination of the objects from this grave with no additional data as to where they were located at excavation, the following sherds were found:

Sherds 7 and 8 are neck fragments of bulbous vessels. On Sherd 8 there is a ridge marking the transition between neck and bulbous part. This ridge is decorated with slanting incised lines. The ware is greyish-brown. Sherd 7 is of greyish-brown ware with a more reddish coating on the outer side. The profile of a neck sherd from a large olla is shown in Fig. 48: 10. Also here the ware is greyish-brown. Bowl Sherd 16 is of browner ware, both sides well-polished.

All cranial remains in this grave represent adults, the last-mentioned probably a male. Since the forehead is depressed, the fragmentary cranium mentioned first above is plainly deformed intentionally. It is probably of a woman.

Apparently the contents of the grave were much disturbed. Also sherds of vessels not belonging to the grave seemed to have got into it when filled during the road work. Taken as a whole, the objects found suggest a late date. Thus no sherd, except perhaps the one shown as 15, reveals Tiahuanaco influence.

Graves 29—36

These were located on the flat cultivated crest of the northeasternmost ridge at Markopata where also Pit 2 was excavated.

Grave 29 (Fig. 49)

Grave 29 was located 2 m from the eastern edge of the ridge.

The roof slab, about 15 cm thick, was found 20 cm below surface. The wall in the east reached above the roof slab. In the earth above the roof slab there were a few olla sherds of greyish-brown ware.

In the filling at the level where the vessels were found, there were several large stones which once may have been wall stones. The position of these stones is not indicated in the sketch in Fig. 49. The lower part of the grave has no wall. The wall, where such is found, is constructed of rough blocks placed horizontally one atop the other.

At bottom level in the centre there were sherds of two large vessels (1—2) of greyish-brown ware with darker outer side. One of these vessels (1) is apparently a fermentation or water jar. Of this vessel several sherds were found, among them rim fragments in one place slightly east of the centre of the grave. The transition between neck and bulbous part is here marked by a horizontal ridge with cross-shaped incised lines. On the outer side there is also a boss with cross-shaped incision. The other vessel (2) is of olla type. Of this vessel several sherds were found, also rim fragments at one spot in about the centre of the grave. In the picture, large parts of the vessels are missing. However, more sherds exist, but it seems as if several have been lost in transit, for which reason especially Vessel 2 could not be quite completed. The way in which the sherds were found in the same layer as the large stones seems to indicate that they were smashed when the stones tumbled down from the wall. Among these sherds there was also one of a kero-shaped(?) vessel (9) of greyish-black ware with polished outer side, and a pestle or bola weight of fine-grained greyish rock (10). Due to inadvertence, the exact position of these later objects cannot be stated. They might be secondary. At about the same level as the tumbled-



Fig. 49. Grave 29, Markopata. 1—2 are 1/6, the rest 1/4.

down stones a small olla (3) was lying close by the southern wall, its opening turned towards the centre. The ware is greyish-brown with traces of a more reddish coating on the polished outer side. Under this vessel a bowl (4) was standing. It is of greyish-black ware and has large browner spots on the surface. On the inner side there are traces

of a reddish coating which may have been applied in spots by way of decoration. Below the rim on the outer side there are two bosses opposite each other, one of which, however, is knocked off. East of the latter vessel Bowl 5 was found standing on edge with its opening towards the centre. The ware is brown with a more greyish core. The polishing on the outer side is inferior to that of the inner side. The inner side has a reddish coating of which only traces appear on the outer side. On the inner side there is painted decoration in black. The decorative design below the zig-zag line along the rim shown in the illustration recurs in each of the four fields between the transverse lines. To the west of the centre of the grave there was a standing, single-eared bulbous vessel (6). The ware is greyish-brown with traces of a reddish coating which may have been applied in broad vertical stripes by way of decoration. Bowl 7 was found slightly to the east of the centre of the grave, its opening turned west. The ware is light-brown, the sides, which probably also had a coating of the same shade as the ware, well-polished. On the inner side there is painted decoration in red-brown, on the outer side below the rim two bosses opposite each other. These have a few incised lines on the upper side. Finally, to the west of Vessels 3—5, Bowl 8 was standing on edge with its opening towards the east. The ware of this bowl is light-brown. The reddish coating once covering both inner and outer side is almost completely obliterated. Close by the northwestern wall there were a cranium with its face turned southeast and some extremital bones of an adult, probably a male. Such teeth as are preserved are worn. Here the charred fragment of a jaw of another adult was found. In the centre and in the southern part of the grave there were also skeletal remains of a third individual, also probably a male. On a jaw fragment a wisdom tooth is breaking out. In the sketch the approximate area of distribution of these skeletal remains is marked by a dotted line.

With the exception of Kero Sherd 9, which probably got into the grave during its construction, all sherds here represent types later than Tiahuanaco.

An excavation was made about 1 m east of this grave, in the course of which the sherds shown in Fig. 50 were found. Sherd A is a bowl sherd of brown ware with very well-polished surfaces and with black-and-white decoration on the inner side. Sherd B is of brown ware with a more reddish coating, which, however, covers only the portion next to the rim on the inner side. The polishing is very inferior. On



Fig. 50. Objects found when test-digging 1 m east of Grave 29. A—D 1/4, E 1/2.

the outer side there is painted decoration in black and a red-brown shade. Originally the latter shade may have been white. Sherd C is of a bowl of brown ware with a coating on the inner side of the same shade and painted decoration in black and red-brown, the latter colour in the field at the extreme left and right. Sherds D evidently represent the same bowl of brown ware with well-polished sides, possibly with a coating of a more brownish-yellow shade. In the centre of the bottom on the inner side, the surface is weathered or worn away. Finally, a thin oblong disc of bone with one slightly rounded surface is shown as E. When found both ends were of the same shape; one, however, was damaged in transit.

The objects last dealt with show a mixture of Inca and Tiahuanaco influences. Thus, Sherd C undoubtedly represents an Inca-influenced vessel; this probably also applies to Sherd A, possibly also to those shown as D. Sherd B, however, shows that the vessel it represents was Tiahuanaco-influenced.

Grave 30 (Figs. 51—52)

Slab cist about 8 m south of Grave 29 on the top of the steep slope towards the east. All wall slabs were visible on the surface before excavation.

In the filling traces of charcoal were noted. In the earth there were also small bone fragments and one sherd of the bulbous part of a large olla of greyish ware with darker outer side. This sherd apparently got into the grave with rainwater. In the centre, at a depth of 35 cm, there was a cranium, at the same level in the southern corner another cranium and a lower jaw, the third molar of which is erupting. At the same level, close by the southeastern wall slab, a bowl with a rudimentary side-bowl on one side of the outer side of the rim was lying on its side, its opening towards the centre (1). This bowl is of brown



Fig. 51. Grave 30, Markopata, seen from the northwest before completion of the examination.

ware with well-polished sides. Close by the bowl a femur was leaning against the eastern corner, the knee condyles turned upwards. In the centre, fragments of ribs and of extremities were lying horizontally. Among these there were also traces of charcoal. The four wall slabs were remarkably thin.

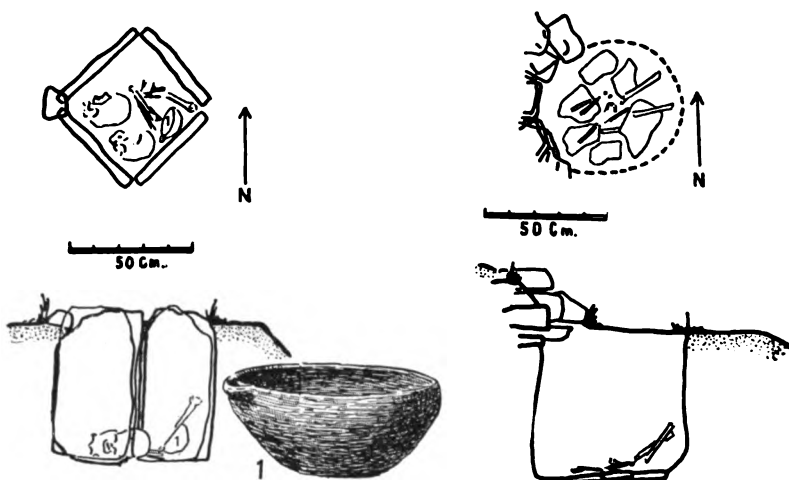
The two crania represent one older and one younger individual, both probably female. The crania were apparently deformed intentionally by bandages having been tied in youth round the forehead and the back of the neck so that the forehead became depressed during adolescence.

The semi-spherical shape of the bowl indicates that it is of late date, while the rudimentary side-bowl shows relationship to the flaring-sided bowl with side-bowl of the Tiahuanaco period — a type found in several of the graves here dealt with (Figs. 36: 44 and 52, 56: 2 and 11).

Grave 31 (Fig. 53)

This grave was located 1.5 m south of Grave 30 at the eastern end of the ridge, immediately below the flat cultivated crest.

This grave had no wall slabs, only the opening of the grave in the west was marked by a few layers of rough stone blocks placed horizontally one on top of the other so as to form an incomplete circle.



Figs. 52—53. Graves 30 and 31, Markopata. 1/4.

The hard filling contained traces of charcoal. A few femur fragments were lying in slanting position close by the eastern earth wall. Fragments of a lower jaw and teeth were found in the centre at the level of the lower part of the femur fragments. At the same level some extremital bones were lying horizontally. Some rough flat slabs, outlined in the sketch, possibly indicated the floor. The skeletal remains are of an adult. The sturdy teeth are worn down. The massive lower jaw and the robust muscle reliefs on the bones of the extremities point to a male.

Grave 32 (Figs. 54—55)

Slab cist on the flat crest 7.5 m south of Grave 31 and about 1.5 m from its eastern edge.

In the filling traces of charcoal were noted. A bulbous vessel of olla type (1) was found at bottom level in the north lying on its side with its opening towards the centre. The ware is light-grey with darker, almost black, polished outer side. The vessel was smashed by earth pressure. In front of the opening of this vessel there lay a bowl (2) with its opening towards the southwest. It may have been used as lid for the olla (1), originally probably standing, as the bowl rim was partly in the opening of the olla. Between the olla and the northeastern corner there was a cup with drinking-tube and anthro-



Fig. 54. Grave 32, Markopata, seen from the southeast before completion of the examination.

pomorphous decoration in relief on the side opposite the drinking-tube (3). The latter vessel was lying on its side with its opening towards the south. The ware is greyish. However, on both sides there are traces of decoration in red-brown. This decoration consists of an irregular linear pattern. A detail figure to the left of Fig. 55: 3 shows the preserved decorative design on the inner side of the cup. The face is in relief. The eyes are slightly curving outwards with an incised dot or dash. The mouth is executed in a similar way. The chin is prominent. Below this face in relief there is a V-shaped ridge with traverse incised lines, probably indicating a necklace. A painted red-brown line runs from the nostril across both cheeks slantingly towards the temples. The same paint covers the upper lip and the lower part of the left cheek. One femur fragment and another of an extremital bone were leaning against the western wall, and below the two vessels first found other fragments of extremital bones. This may prove that the olla was originally standing, having the bowl as lid. The skeletal remains represent an adult, probably a female since they are very slender.

Owing to its shape Bowl 2 occupies a position intermediate between the flaring-sided bowl of the Tiahuanaco period and the later semi-spherical bowl type. On the other hand, the cup with drinking-tube and anthropomorphous decoration is rather related to the kero of the Tiahuanaco period with anthropomorphous decoration in relief.

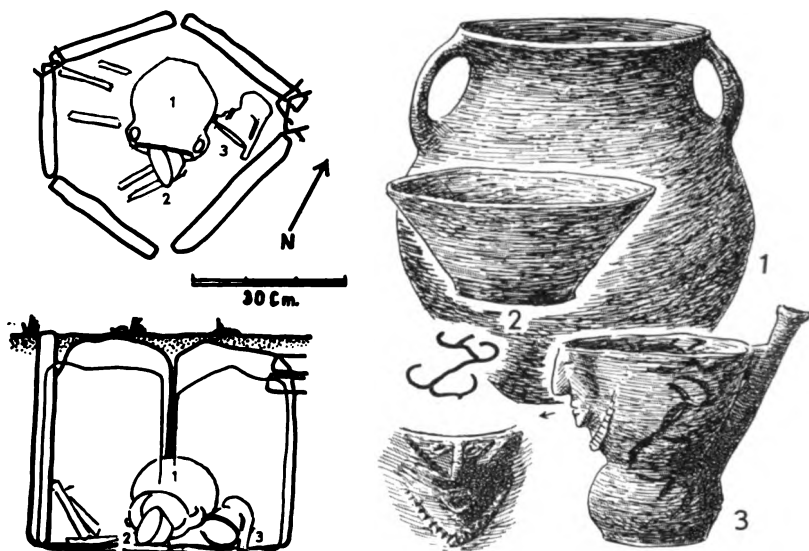


Fig. 55. Grave 32, Markopata. 1/4.

Grave 33 (Fig. 56)

Slab cist 5 m south of Grave 32, 1 m from the eastern slope. The roof slab was broken by a blow of a pickaxe during a test digging. Hence its shape is partly indicated in the sketch by dotted lines. The earth above the slab was exceptionally hard and rich in rubble; therefore the blow was hard enough to break the slab. The position of the grave was indicated by the striking greenness of the grass above. Above the grave there were a few sherds, probably of an olla.

The cist was not filled. Therefore, when tumbling down, roof slab fragments damaged a couple of the vessels. Two — 6 and 5 + 8 — had been smashed previously. Some sherds, among others of Vessel 2, seem to have been lost in transit. In the earth round these vessels there were traces of charcoal. To the north a vessel of olla shape was lying with its opening towards the east (1). It is of light-brown ware and has a reddish coating on the outer side and on the inner side of the rim. The outer side is well-polished with painted decoration in black. Possibly it was also decorated in white. On the inner side there is a black line parallel with the rim. To the south of this vessel a flaring-sided bowl with a small rim bowl on the outer side was lying, its opening towards northeast (2). Midway on the inner side there is a horizontal groove

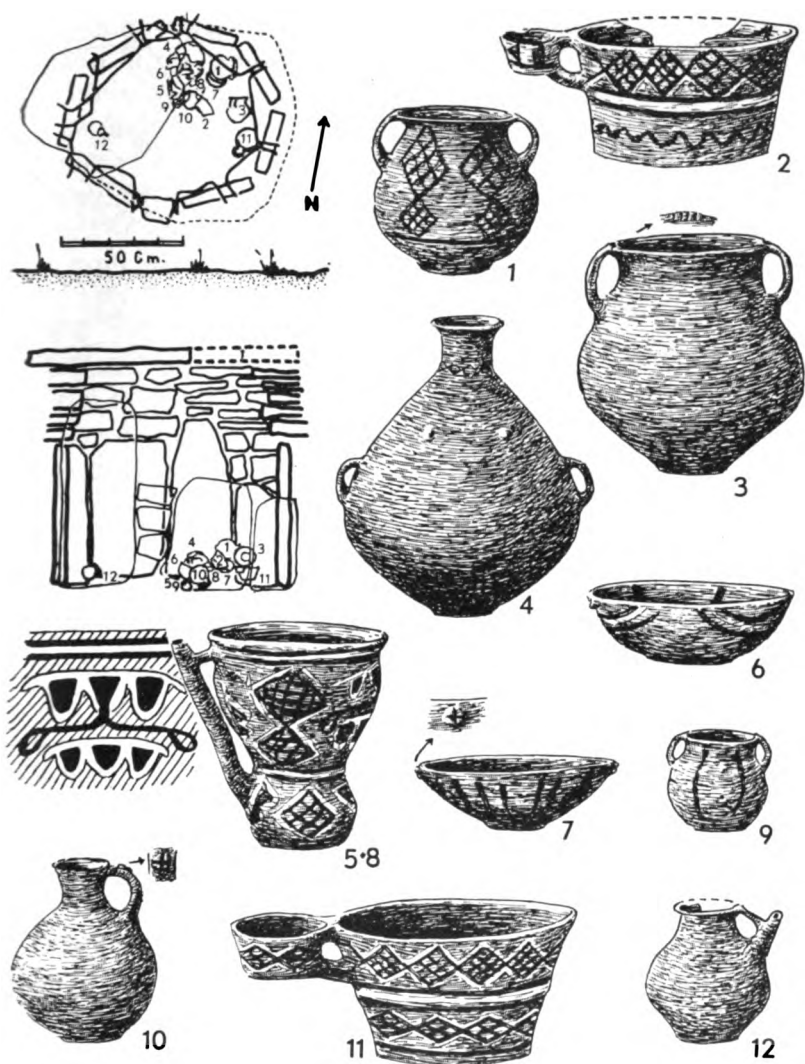


Fig. 56. Grave 33, Markopata. 1/6.

which, on the outer side, is marked with only two parallel, black horizontal lines. The ware is brown, the coating slightly more reddish. The surfaces are rather poorly polished. The decoration on the outer side is done in both white and black; on the inner side, however, only the black decoration is now preserved. This black decoration, incidentally, has turned into dark red-brown. Close by the eastern wall an olla of

greyish black ware with polished outer side was lying with its opening towards the north (3). Across the rim some lines are incised above each ear. The aryballus-shaped Vessel 4 — smashed by pieces falling from the roof slab — is of greyish-brown ware with thin walls and with an incised line of crosses around the base of the neck. On one side of the vessel there are two boss-like protuberances. The vessel had been placed close by the northern wall. Somewhat more to the centre lay the fragments of Cup 5 + 8 with drinking-tube. The brown ware is concealed by a somewhat more red-brown coating having painted decoration in black-and-white. On the side opposite the drinking-tube this decoration probably represents a human face. The drinking-tube (5) was found a short distance from the other sherds of this vessel (8). Bowl 6, in fragments when found, is made of brown ware with a reddish coating. The surfaces are rather poorly polished; the decoration on the outer side is in black-and-white, on the inner side in black only. Under Vessel 1, Bowl 7 was found leaning with its opening towards the northeast. It is of brown ware with dark spots on the surface. The sides are polished, the decoration on the outer side in black turning into red-brown. On each side there is a small boss just below the rim. This boss has two crosswise incised lines. The small Olla 9 was standing in the centre. The ware is brown, the coating on the outer side and the inner side of the rim turning into red. On the outer side there are traces of decorative lines in black. Immediately east of this vessel, the single-eared bulbous Vessel 10 was lying bottom up. It is of greyish-black ware with well-polished outer side. On the ear there is a boss with two cross-shaped incised lines. Close by the wall in the east, and slightly higher, a flaring-sided bowl with a small bowl on the outer side (11) was standing. This vessel is an almost exact replica of Vessel 2. The only difference is in the pattern of the painted decoration, and that the vessel last found lacks decoration on the inner side. At bottom level, isolated in the western part, the small Vessel 12 with drinking-tube was lying on its side, its opening towards the centre. The ware is brownish, the outer side rather poorly polished. In the bottom layer there were a few small fragments of extremital bones and ribs. They show that an adult had been buried here.

The Tiahuanaco influence of the vessels from this cist is striking. This applies especially to Vessels 2, 5+8 and 11. Bowls 6 and 7, however, have the later semi-spherical shape. The design of wavy lines on Bowl 6, however, is related to Tiahuanaco, where the same rim design occurs on keros and bowls, especially during the Decadent Period.

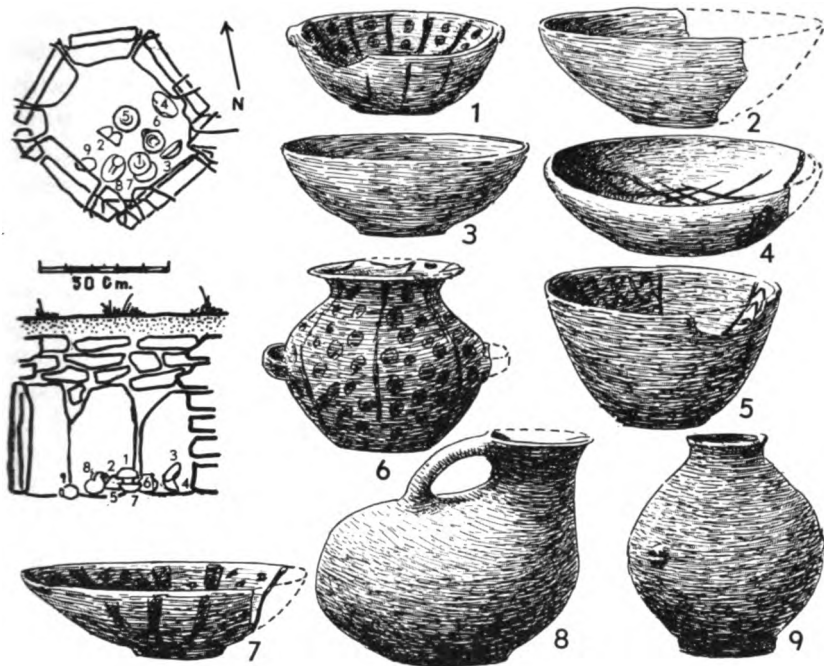


Fig. 57. Grave 34, Markopata. 1/4.

Grave 34 (Fig. 57)

Slab cist south of Pit 2 dealt with in the following, and 1.5 m inwards on the flat crest.

The roof slab had broken and fallen down in the chamber, which was filled with earth and stones. Since it was impossible to tell which stones belonged to the filling and which were fragments of the roof slab, the position of these stones is not indicated in the sketch. In the east a gap between two slabs had been filled up with large stones put one atop the other. The bottom level was marked by the vessels which the deceased had got with him in the grave. The missing fragments of Vessels 2 and 7 — the first found broken — were probably lost in transit. The other vessels probably were defective already when put into the grave.

Bowl 1 was lying bottom up close by the southeastern wall. The ware is greyish-brown with darker spots on the surface. The sides are polished, the decoration done in red-brown. On the outer side there is a boss immediately below the rim on either side. Bowl 2 was found

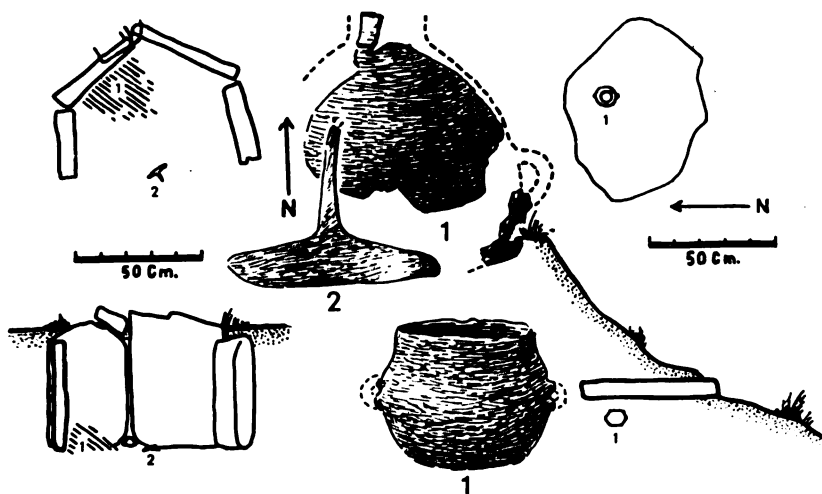
broken in the centre of the grave. Ware and surface treatment are similar to those of the preceding; however, there is no decoration. Vessel 3 was lying close by the eastern corner, leaning with its opening towards the centre. Ware and treatment of the surface are similar to those of Vessels 1—2; the sides, however, are coated in a reddish shade. Bowl 4 lay close by the wall slab in the northeast, its opening towards the slab. The ware is brown, almost orange-coloured, its sides well polished, especially the inner. Decoration in black. On the inner side there is another decorative stripe corresponding to the one shown and parallel therewith. Bowl 5 was found bottom up in the centre. The ware is the same as that of the preceding vessels. The outer side is darker than the inner side, on which there is painted decoration in red-brown. Between the latter vessel and the eastern wall slab Vessel 6 was standing. The ware is greyish-black with red-brown painted decoration. The preserved ear is painted in this shade. The decoration on the inner side of the rim consists of irregular dots and dashes. Under Bowl 1 stood Bowl 7. This is of greyish-brown ware with a large black spot after firing. The decoration is in red-brown on the polished sides. Close by the southwestern wall slab the shoe-shaped Vessel 8 was standing with its opening towards the centre. The ware is dark-brown with darker spots after firing. Traces of a red coating can be discerned. The bulbous Vessel 9 was lying west of Vessel 8 with its opening towards the west. The ware is brownish with a darker, almost black, bottom part. The outer side is polished. Midway on the side there is a slight protuberance with an incised horizontal line. On the opposite side the fractured surface of a corresponding protuberance is discernible.

The vessels from this grave on the whole suggest a late date (post-Tiahuanaco). Thus the semi-spherical bowl is the dominant type.

Grave 35 (Fig. 58)

Slab cist some distance down the southern slope of the northeasternmost ridge of Markopata, 15 m south of Pit 2 and Grave 34. The position of the grave was such that it must have been exposed to heavy erosion. This explains the absence of wall slabs in the south.

At bottom level in the filling, close by the northwestern wall slab, were sherds of an aryballus of orange-coloured ware with polished sides. The neck is coated with a white layer of paint with a black edge line at the bottom of the neck (1). At bottom level in the centre there was a tumi (2). Spectrum analysis showed it to be of bronze. The tin



Figs. 58—59. Graves 35—36. Markopata. 1/4.

content is about 10 per cent, silver about 2 per cent, lead about 1 per cent.

If the aryballus sherds belong to the original equipment, the grave could be dated to Inca times.

Grave 36 (Fig. 59)

Somewhat farther down on the slope where Grave 35 was found, and 5 m west thereof, an irregular flat stone slab was lying horizontally. Under this slab there stood a vessel of greyish-brown ware with polished outer side (1). Originally this vessel had two small ears. Judging from their vertical position, the vessel was intended for suspension. It might be an offering, or the grave may have been destroyed.

This vessel shows no characteristics for dating.

Pit 1 (Figs. 6, 60—62)

Immediately below the top of the northwesternmost hill at Markopata a test digging was made, marked *Test* in Fig. 60. During this work 45 sherds were found, nearly all of ollas, and two metal objects, the one being part of an axe edge, the other the pin part of a topu, Fig. 61: H-I. Spectrum analysis showed both objects to be of bronze. In both of these objects the tin content is about 10 per cent, silver about 2 per cent and lead about 1 per cent. The olla sherds are of the

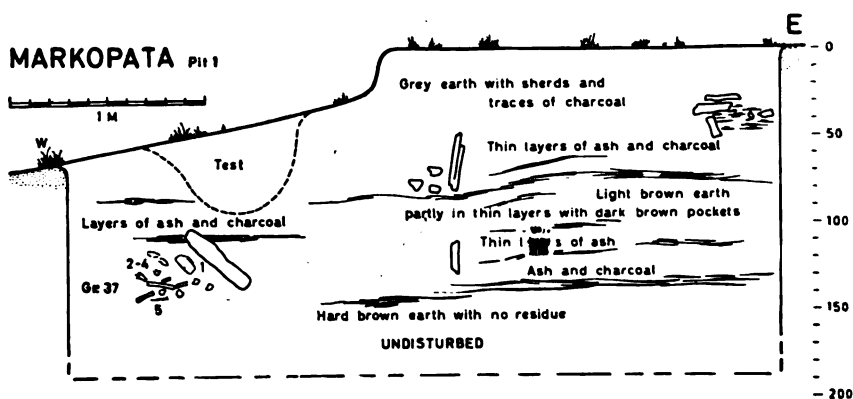


Fig. 60. Pit 1, Markopata, with Grave 37. Black streaks mark distinct layers of ashes and charcoal.

usual greyish ware turning into brown or black. A and E are olla rim sherds with an opening diameter of about 20 cm, D is the bottom sherd of a similar vessel. Sherd B is also from a vessel of olla type with the same opening diameter. However, the outer side is here coated reddish. The same applies to Sherd F, evidently the bottom sherd of an aryballus or aryballus-shaped vessel. Sherd C, of greyish ware, may represent another aryballus-shaped vessel. Sherd G has a rather unusual shape. Evidently it belongs to a lid with a diameter of about 20 cm. The upper side is better polished than the underside. The ware is greyish.

The objects from this test digging were found within an area of about 75 cm in diameter and at the same depth. Since the wealth of residue within so limited an area indicated a permanent settlement site, a pit was sunk and gradually enlarged so that at the end of the excavation it was 4 m long and 4 m wide. The test digging was made approximately in the centre of the western part of the pit. At first the pit was only 2×2 m, and the 50-cm layers successively examined. When subsequently the pit was extended eastwards, it was divided in two levels. The stratum first examined reached a depth of 1 m. This was done in order to bring about a greater difference between the objects from this near-surface layer and those from a greater depth. This division has also been followed in presenting the objects from the entire pit. Continued examination also showed that the test excavation was made in the part richest in residue. During this excavation Grave 37 was located. In the following, the objects from this grave and its vicinity are treated as an independent group.

0—100 cm (Fig. 61: A-m)

Besides the objects shown, 40 bone fragments, mainly of llama, were located with more than 700 sherds of vessels of olla type, 8 sherds of brown ware with reddish coating and probably representing bowls, and about 30 sherds of similar ware and with the same coating but probably representing aryballi or aryballus-shaped vessels, possibly also vessels of olla type.

In the eastern part at a depth of about 50 cm there were several slabs about 50 by 30 cm, and at a depth of 50 cm, distinct ash streaks with traces of charcoal. Here were also the remains of a charred corn cob. At a depth of 45 cm there were some fragmentary bones of birds together with the fragment of a grinding-stone. In this stratum there was a total of six fragments of muller stones and a fragment of a large stone mortar with shallow depression, the latter fragment at a depth of 35 cm. The spherical grinding-stone or bola weight shown as 61: f was found at a depth of 75 cm. At a depth of 65 cm there was a large fired lump of clay of rectangular shape with rounded edges measuring 20 x 12 x 8 cm. At the same depth lay the bone object shown as Fig. 61: l.

The sherds in Fig. 61: A—G suggest Inca or vessels manufactured under Inca influence. Sherds A—F are from bowls of brown ware. Where the opening diameter can be determined, it is between 15 and 20 cm. The inner side of Sherds A and C are covered by a whiteish coating. On Sherd A the decoration is entirely in black, while on Sherd C also brown can be seen between the two black parallel lines. On Sherds B, F and G there is a coating somewhat more reddish than the brown of the ware. On B and D the decoration is in black. The drop button on Rim Sherd G from an aryballus is painted white.

Sherds H—U are more difficult to determine since they show neither distinct Inca style characteristics nor influence from Tiahuanaco pottery shapes and decoration. The ware of Sherds H—U is brownish. Bowl Sherd H has both sides polished. The ware of Sherds L and U tends to light grey, that of N is darker, almost like the ware of an olla. It is strikingly coarse in Sherds L and T. The surfaces, except those of the two last-mentioned sherds, are well polished. On the inner side of Sherd O, and on the outer side of S and T, there is a reddish coating, a white one having probably existed on the outer side of Sherd R. Decoration in black. On Sherds P and T decorative white paint is added; on the former as thin edge lines for the black

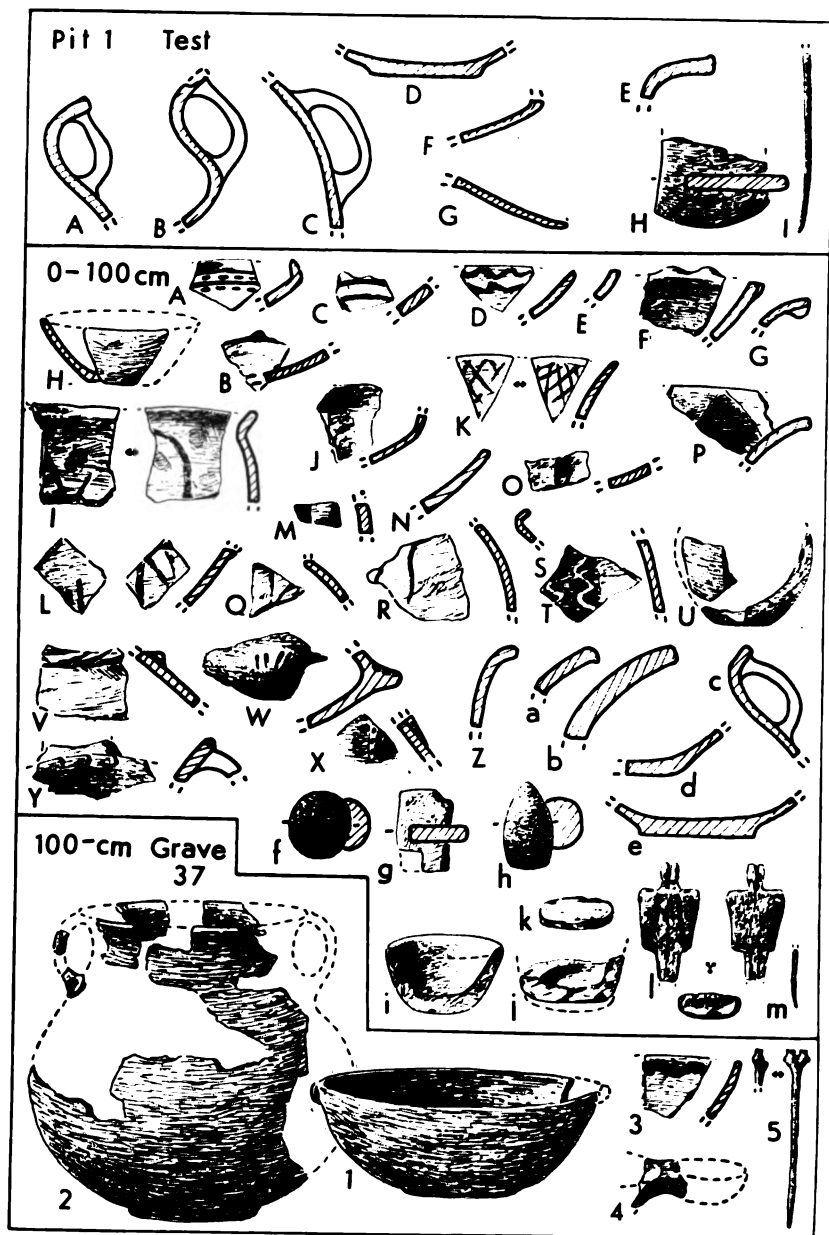


Fig. 61. Objects from Pit 1, Markopata. 1/4.

design, on the latter as two wavy lines on the black ground. Sherds I—O probably represent bowl-shaped vessels, while Sherds P—U are from bulbous vessels. The opening diameter of the vessel represented by Sherd I is 20 cm, of K 15—20 cm, of P 20—25 cm, and of S 7 cm.

All of Sherds V—e are olla ware. Z is a neck sherd while the other rim sherds are from vessels with a larger opening diameter, 20—25 cm.

The spherical stone object f is of a fine-grained greyish rock while the rock of the grinding-stone g and the bola weight h is reddish.

Two fragments of small mortars of fine-grained, dark greyish rock are shown as i and j.

A game counter made of an olla sherd is shown as k (cf. *Ryden* 1935 Fig. 131: c pp. 257—258).

Object l, of llama bone, probably represents a human being. The natural shape of the bone partly accounts for the form of the object.

The fragment of a metal pin is shown as m. Spectrum analysis showed it to be bronze containing about 10 per cent tin, 2 per cent silver and 1 per cent lead.

100 cm and Deeper (Fig. 61: 1—5, Fig. 62).

Grave 37 (Fig. 61: 1—5)

Under a slab lying aslant (cf. Fig. 60), the bowl shown in Fig. 61: 1 was found. It is of greyish ware with a darker, almost black, bottom. The sides are polished, and on the outer side below the rim there is a boss. Whether a counterpart existed on the other side is uncertain. Within an area of 50 cm in diameter and at a depth of 30 cm around the bowl, there were skeletal remains; to the west of the bowl and at the same level cranial remains, and below the bowl fragments of a lower jaw and teeth. The bottom of the grave was indicated by some extremital bones lying almost horizontally as well as a metal pin with twin head and eye on one side (Fig. 61: 5). These objects lay slightly north of the cranium and the bowl, but about 25 cm deeper. Spectrum analysis showed the pin to be of bronze. It contains about 10 per cent tin, 2 per cent silver and 1 per cent lead. The skeletal remains represent an adult. The earth round the skeletal remains contained traces of charcoal. In this earth the sherds in Fig. 61: 3—4 were also found; both are of brown ware with polished surfaces. On the inner side of Bowl Sherd 3 there is decoration in black. The opening diameter of the bowl was 15—20 cm. There were also sherds in the earth around the skeletal remains. These could be pieced together into an almost complete olla

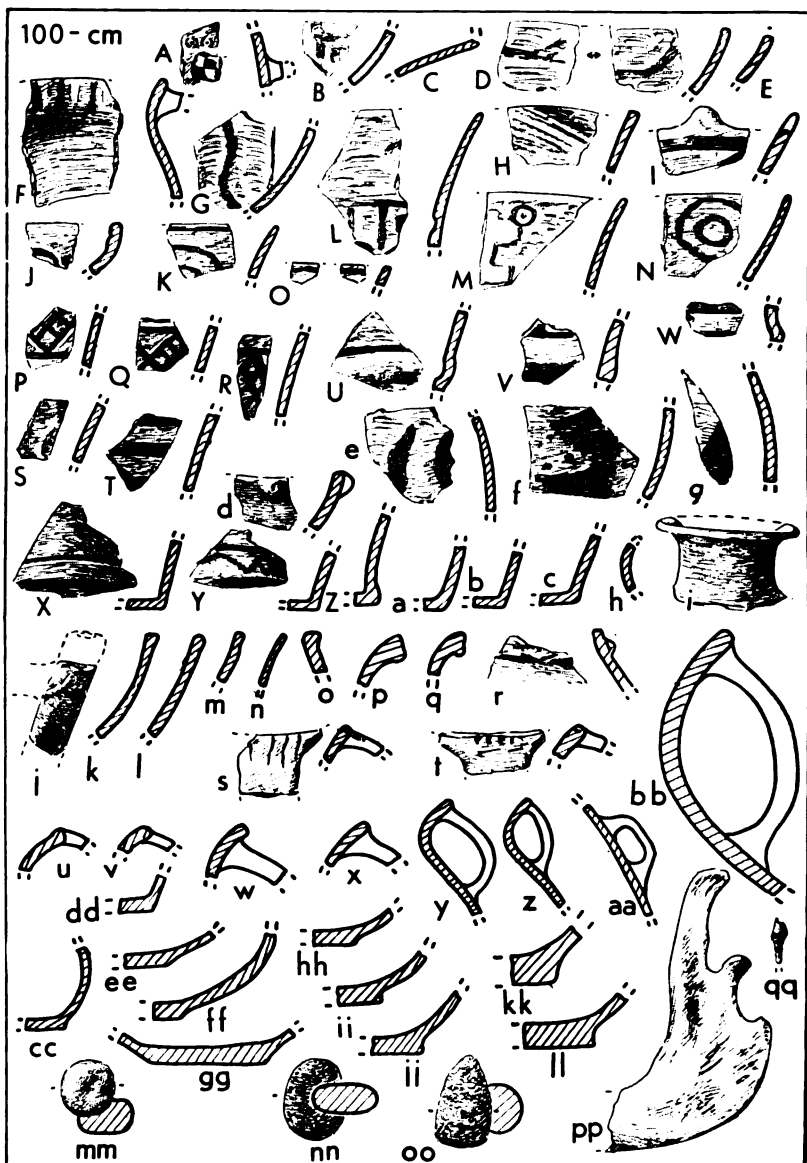


Fig. 62. Objects from Pit 1, Markopata. 1/4.

(Fig. 61: 2). The ware is greyish, the outer side polished. A total of 30 olla sherds were found, some of which, however, do not belong to the vessel last described.

The objects described probably derived from a destroyed slab cist. That this site was inhabited also after the burials is shown by a few horizontal streaks of charcoal and ashes in the earth layer immediately above the grave.

At first the number of objects in the stratum below 100 cm was large, especially the number of olla sherds, but the number quickly diminished and ceased completely at a depth of about 150 cm. The typical Tiahuanaco sherds shown in Fig. 62: L, M and Y lay in the bottom layer of the culture stratum. Where the residue ceased, a more brownish layer of intact earth slanting towards the west followed. Since the examined grave was located in the stratum containing Tiahuanaco pottery, it must be later than this pottery. Streaks of charcoal and ashes could be observed even in the last examined layer with Tiahuanaco sherds. The residue also seemed to be concentrated in pockets with darker earth. Incidentally the earth of the culture stratum was softer than that of the intact bottom layer and of a more light-brown tint. Also the undisturbed bottom layer was mixed with rubble. Distinct streaks of charcoal and ashes slanting towards the west marked the transition between the culture stratum and the intact bottom layer in the eastern part of the pit.

Besides the objects (1—5) from Grave 37 shown in Fig. 61 and those from greater depth than 100 cm shown in Fig. 62, about 400 bone fragments, mainly of llama, 1,700 olla sherds, including about 100 of a more brownish ware and mostly with reddish coating, were located in this layer. Some of the latter sherds probably represent bowl-shaped vessels.

The sherds in Fig. 62: A—C on the whole suggest Inca. The ware is invariably brown. On the outer side of Sherd C, evidently the bottom part of an aryballus, there is a reddish coating. The decoration on Sherds A and B is in black. The surfaces are well polished. The decorative figure on the inner side of Sherd B is probably a fragmentary figure representing a quadruped.

Sherds D—H are more difficult to determine since they show neither Inca nor Tiahuanaco characteristics. The ware is brown. The sides on Sherd E may have had a more reddish coating. A similar coating is

also found on the outer side and at the top of the inner side of Sherds F and G. On Sherd H this coating on the inner side has been applied in an irregular linear pattern; this might be for decorative purposes or else perhaps due to an uneven brush. The decoration on G is in black; on D, F and J in white and black. Sherd F represents a bulbous vessel probably with ear, while the rest are from bowl-shaped vessels.

Tiahuanaco influence is obvious in Sherds I, K—c, especially L and M. Both sherds represent keros. A red-brown coating covers the outer side and the inner side at the top. On the inner side of Sherd L there is the horizontal groove characteristic of Tiahuanaco keros. On Sherd L the decoration is in black. On Sherd M orange is added in the jaguar head. The workmanship of these two sherds is not bad, comparing favourably with Decadent Central Tiahuanaco pottery, while that of the rest of the sherds is inferior. Of the remaining sherds, K, S, U—W and a are from keros; X, Y and c from flaring-sided bowls. Whether the remaining sherds represent keros or flaring-sided bowls is uncertain. The ware is brown; in N, however, slightly greyish and almost similar to that of ollas. Certainly, there is a somewhat more reddish coating on the outer side of Sherds K, N, O, R, W, T and Y; white and black on Sherds P, Q, V and X. On Sherd U orange is added besides black on the horizontal ridge. On Sherd S white is the only shade of decoration. Three more sherds correspond to that shown as O.

Besides the sherd shown, Bowl d is represented by three other rim sherds, which, however, lack boss below the rim on the outer side. The opening diameter is about 30 cm. The ware is brown, the outer side coated reddish. Sherds e—i are from bulbous vessels of brown ware. Two more sherds correspond to that shown as e, like Neck Sherd i. The outer side is polished, the decoration on sherds e—g done in broad black lines. The opening diameter of Sherd h is about 7 cm. The workmanship of the vessel represented by Sherd i is very good.

Sherd J, which is of brown ware with more reddish coating, is part of a drinking-tube.

The ware of Sherds k—ll is that typical of ollas. The type of bowl shown by Sherds k and l is represented by 15 other sherds. The opening diameter is 15—20 cm for Sherds k—o; for p and q slightly less. The opening diameter of the vessels represented by Sherds s—z is slightly larger; that of the large Sherd bb with a broad ribbon-shaped ear is 30 cm. Sherd aa represents an aryballus-shaped vessel, while Sherds s—z are from vessels of olla type. Sherd cc is from a small bulbous

vessel with flat bottom measuring 5 cm in diameter. Sherds dd—ll show various olla bottom profiles.

Stone object mm is of a very fine-grained dark bluish-grey rock, while that of nn and oo is pale greyish. Object oo is probably a bola weight or small grinding-stone.

Bone object pp is part of a llama jaw. The curved edge downwards to the right is worn, which shows that the object was probably used as a scraper or matrix in the manufacture of bulbous vessels.

Spectrum analysis showed that the topu fragment gg is of bronze containing about 10 per cent tin, 2 per cent silver and 1 per cent lead.

Pit 2 (Figs. 6, 63—66)

On the western slope of the northeasternmost hill of Markopata, where Graves 29—36 were examined, some slabs placed on edge in an almost straight line running nearly north-south could be seen on the surface of the field sloping gently towards the west. On the assumption that there were building remains here Pit 2 was sunk, which also revealed Graves 37—41 (cf. map Fig. 64).

The boundary lines on the map in Fig. 64 also show the approximate extent of the pit. Of the north-south row of slabs placed edgewise most of those farthest to the south were visible before excavation.



Fig. 63. Pit 2, Markopata, after removal of the surface layer.
Picture taken from the southwest.

Examination revealed in the south a row of stones corresponding to that first observed. This row formed a western angle to the north-south row. The stones here, placed more irregularly, varied somewhat more in appearance. South of the latter row there was a muller of the type still used by the Indians in the Mollo region — a flat stone with a rounded blunted edge. The stone, rocked to and fro, crushes the maize grains between the blunted edge and a flat bed of stone.

On the eastern side near the centre of the north-south row, and parallel to the north-south one, there was an incomplete row. The flat stones of this row, however, were not put on edge but horizontally.

The stone rows are probably remains of houses or assembled in order to prevent erosion.

As appears from the levelling figures of the surface before the start of the excavation — these figures shown under a line — the earth layer above the north-south row of stones was deepest in the north. The ground surface also rose towards the east. Farthest north a large flat slab was placed horizontally at the same level as the base of the stones located farthest north in the north-south row. The size and placing of the slab pointed to the existence of a grave below. However, nothing but intact earth was found. East of this slab there were remains of a wall. It was partly constructed of rough slabs placed one atop the other. This fragmentary wall ran parallel to the north-south row of stones.

As appears from the sketch, Graves 37—41 were located east of the north-south row.

As the culture stratum was very shallow in the whole area of the pit — no objects were discovered at a depth 35 cm below surface — it soon became apparent that a horizontal strata examination of the pit would be useless. Thus, west of the north-south row of stones, the earth was intact also 25—30 cm below surface. The discoveries made here at the greatest depth were at the same level as the base of the slabs in the north-south row of stones. Here was found, for instance, the bowl of brownish ware marked A on the map Fig. 64 (Fig. 65: A). The sides are polished. Once there was probably a white coating on the inner side.

East of the north-south row of stones the culture stratum terminated at the approximate level of the upper edge of the slabs in the north-south row of stones. Thus, the culture stratum here was scarcely 10 cm deep. Among the lowest lying objects are the bowl sherds Fig. 65: c, found at a depth of 20 cm about 1 m south of the large northern slab.

MARKOPATA Pit 2

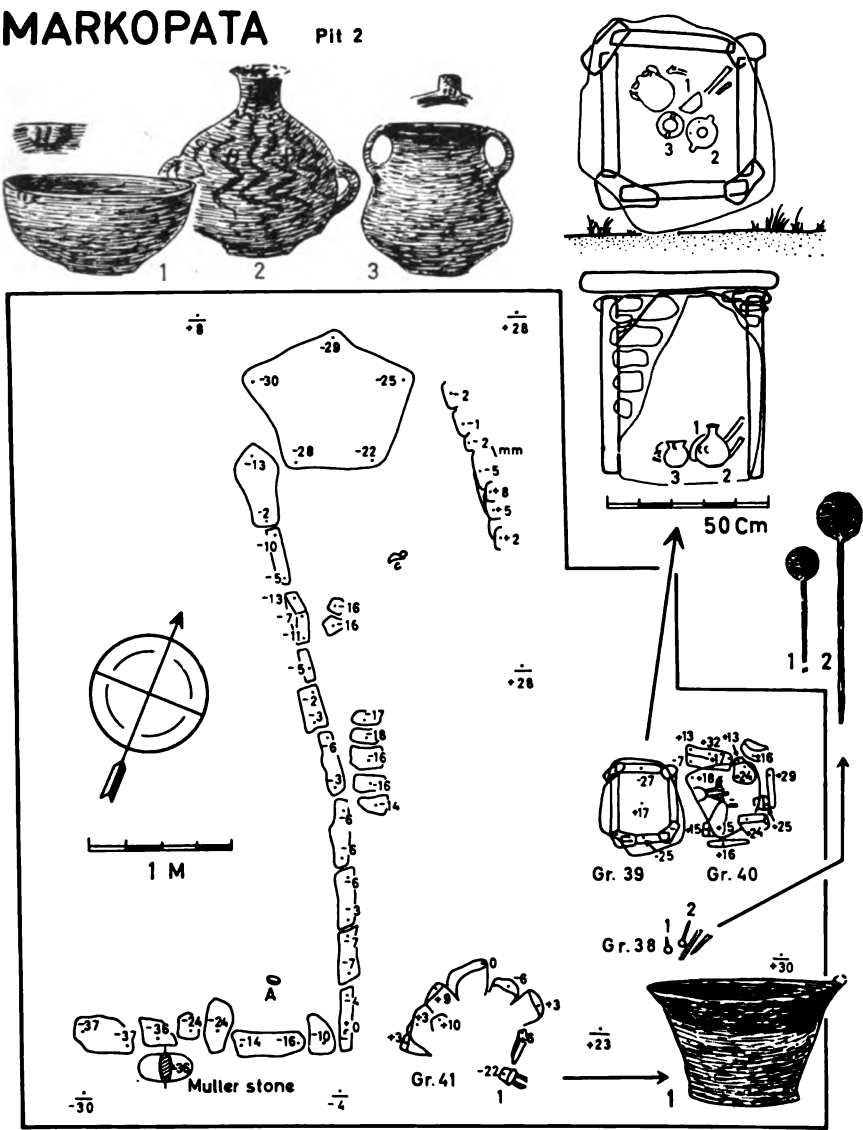


Fig. 64. Pit 2, Markopata, with Graves 39–41. The objects from Graves 39 and 41 are 1/6, from Grave 38 1/4.

The topu pin shown as mm in Fig. 65 was found almost at surface on the northeastern wall. In the culture stratum faint traces of ashes and some charcoal could be discerned. These latter objects are marked c and mm on the map. Fig. 64.

In Fig. 65 are shown dateable and other objects found during excavation of Pit. 2. Besides those shown there were about 150 bone fragments, all probably of llama, and about 400 olla sherds. These objects were distributed evenly in the surface layer of the whole pit. Bowl A, earlier mentioned and described (cf. p. 88), and Sherds B—D, owing to the white coating, suggest Inca. That Sherd B undoubtedly is Inca is proved by the decoration on the inner side being done in brown and black. The triangles along the rim are painted in brown. The white coating on the inner side of Sherd D is all but obliterated. The decoration on Sherd D and that on C is in dark brown. The ware of all sherds is brownish. Rim Sherd E of red-brown ware may also be Inca or modern. It belongs to a bowl with an opening diameter of about 20 cm.

All of Sherds F—Q represent the semi-spherical type of bowl. In every instance the opening diameter is 15—20 cm. The ware is brownish. The profile of bowl O is represented by three more sherds, the profile of Sherd P recurring on seven others. A couple of the latter show traces of decoration in a dark shade — black? Rim profile Q is unusual owing to its marked and slightly thicker brim. The sides are polished, the inner side of the rim coated reddish. This sherd may be from a modern vessel. On Sherds F, I, J and N the surface is poorly polished. A more reddish coating can with certainty be noticed only on Sherds G and M. The decoration is in black, or black tending to red-brown on the outer side of Sherd F. On Sherd J white is added. On the outer side of Sherd I white is the only colour of decoration.

While Sherds F—Q, taken as a whole, give a more modern impression, Sherds R—k show Tiahuanaco influence. On Sherds R, T, U, X, Y, f, and g the decorative colour is black exclusively. White besides black was used on Sherds S, V, W, and d. The decoration on Sherd e is in red-brown, which originally may have been black. Ware and workmanship are rather crude. Sherd R probably represents a kero, Sherds S, T, U, V and e rather a flaring-sided bowl. Which of the two types of vessels mentioned is represented by the rest of Sherds R—Y is uncertain. If anything, Sherds d, f and g are from bulbous vessels. On all these sherds there was probably a coating — often weathered away — of a somewhat more reddish shade than that of the ware. This coating is also found on Sherds Z—c. Of the latter Sherds Z and c represent bowls and a—b keros. On Sherds Z and a the shape of the profile is remarkable, and Bowl Sherd c has evidently had an ear. On the inner side below and parallel to the rim on Sherds a and c there is a narrow groove corresponding to the broader and deeper one often

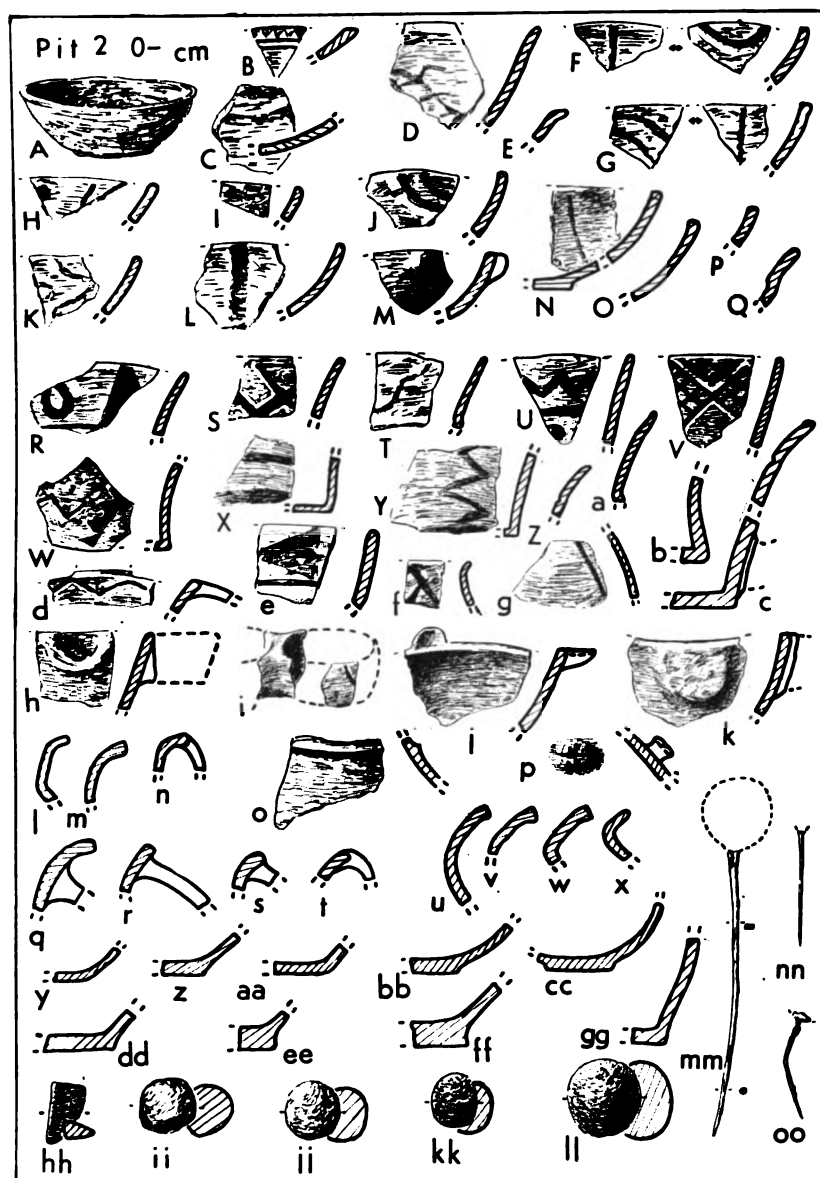


Fig. 65. Objects from Pit 2, Markopata. 1/4.

occurring on the inner side of Central Tiahuanaco keros. Sherds of flaring-sided bowls with smaller side-bowls are shown as h—k. Of these another sherd corresponding to h is found. On Sherds h—j there



Fig. 66. Grave 39 in Pit 2, Markopata, seen from the east after removal of the roof slab.

is a red coating. Ware and workmanship of Sherd k are almost identical with those of ollas. On Sherd i there is decoration in black-and-white.

Sherds l—n are neck fragments of bulbous vessels of brownish ware with polished outer sides. The opening diameter of l is 5 cm, that of m—n 10 cm.

Sherds o—gg are all of olla ware and represent ollas or bulbous fermentation or water jars of similar appearance. The opening diameter of Sherds q—x is 20—30 cm. The ware of Sherd t is more brownish than that of the other sherds.

Object hh is the fragment of a small grinding-stone of greyish-brown fine-grained rock. The spherical stones — bola weights? — ii-ll are of fine-grained rock of rather dark greyish colour. Among the objects from this pit the more crudely made object ii has three additional replicas.

Object mm is a topu pin. Except the point itself, which is round, it is rectangular in cross-section. Object nn is another such pin, but smaller and circular in cross-section; oo is a third pin with a fragment of a probably globular holed head. Spectrum analysis showed that the two objects mm and oo are of bronze containing 10 per cent tin, 2 per cent silver and 1 per cent lead. Pin nn, however, is of silver mixed with about 10 per cent copper, 1 per cent tin and 1 per cent lead.

Grave 38 (Fig. 64)

About 2 m east of the north-south row of stones a fibula and a tibia, both fragmentary, were lying horizontally 30 cm below surface together with two topus. Directly under these objects there was intact earth. No slabs or other traces of a grave-chamber could be seen. This grave was probably destroyed during cultivation. The skeletal remains are from an adult. The point of one topu (1) was so brittle that it was damaged when picked up. Spectrum analysis showed it to be of bronze containing about 10 per cent tin, 1 per cent silver and 5 per cent lead. The large topu (2) is also of bronze but contains about 10 per cent tin, 2 per cent silver and 1 per cent lead.

Grave 39 (Figs. 64 and 66)

Slab cist like Grave 40 located immediately north of Grave 38.

This cist was constructed of four slabs placed on edge with a fifth as roof. The latter was located a few decimetres under the surface.

The cist contained earth only at bottom. The joints between the large wall slabs were filled with rubble, perhaps also clay. Slightly north of the centre of the cist a cranium was lying at bottom level with its face towards the west. The fragmentary femurs were found leaning in the northeastern corner. On the cranium and Vessel 3 there could be seen textilian remains which quickly mouldered in the daylight. At bottom level slightly northeast of the centre of the cist there was a Bowl (1) of greyish-brown ware turning into black. It stood on edge with its opening towards the west. On the outer side below the rim there is a boss with a couple of incised lines. South of this bowl stood an aryballus-shaped vessel (2) of greyish-brown ware, the surface of which turns into black. Below the neck there is an incised horizontal zig-zag line. On one side between the ears there are two slight protuberances with crosswise incised lines. The bulbous part of the vessel is decorated with parallel vertical red-brown wavy lines. The third vessel, found in the centre of the cist, is of olla type (3). On the rim above the ears there are some incised traverse lines. In the grave there were also a couple of sherds from the bulbous part of an olla and a bottom sherd. These sherds probably do not belong to the original funerary requisites. There were also similar sherds in the earth above the grave.

The skeletal remains in the grave are from an adult.

Judging from the types of vessels, this grave is of late date (post-Tiahuanaco).

Grave 40 (Fig. 64)

Slab cist immediately east of the preceding. Apparently this cist had caved in. The wall slabs were dislodged vertically under and beyond the roof slab which, however, remained in its original horizontal position although deeper below surface. Below the roof slab, and slightly to the west, there was a fragmentary cranium of an adult and some extremital bones lying almost horizontally. The face of the cranium was turned towards the west. Remains of charcoal could be seen in the earth below the roof slab, especially in the southeast. A few other large stones, probably from the wall of the cist, lay below the roof slab. These are not shown in the sketch.

Grave 41 (Fig. 64)

Immediately east of the southern end of the north-south row of stones there was an incomplete circle of slabs, all leaning slightly outwards. Just outside this circle a bowl (1) of remarkable ware and workmanship was found to the south. The core of the ware is light greyish-brown, the surface almost white. The temper, a pulverized white rock, is fully visible in the fracture surfaces. At the top on the outer side there is a reddish coating. On the rim there is a fracture surface showing that this vessel originally had a rim boss. Under the bowl two extremital bones of an adult were lying horizontally.

The shape of the bowl corresponds to the Tiahuanaco flaring-sided bowl.

CHULPANI

About 500 m in a northwestern direction from Markopata (cf. map Fig. 2) there is a farm called Tikamori. About 300 north thereof and immediately south of a trail leading to Ayata is located the earlier described hill Chulpani (p. 15 map Fig. 67 and Fig. 72). The hill has received its name because sherds of ancient pottery are found there. In Bolivia the term "chullpas" is used not only for ancient tombs and graves of different types but also to indicate ruins and at times also the sundry objects found (Rydén 1950 pp. 339 ff.).

The top of Chulpani is almost flat and cultivated in its entirety. At the time of the examination here accounted for, only a small triangular strip on its southern side was unsown, this severely impairing the chances for an examination. The size of this untilled patch permitted no more

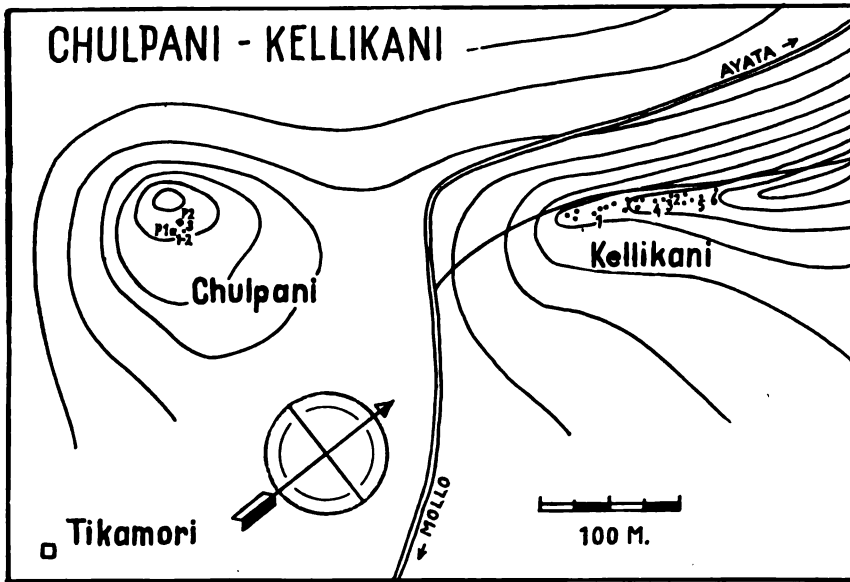


Fig. 67. Sketch map of the Chulpani and Kellikani sites.

than the sinking of a pit and a few test diggings. In view of the risks of severe additional damage to the cultivated field by subsequently increased erosion, the size of the pit had to be strictly limited.

Surface Residue (Fig. 68)

On the top of the hill some sherds were located at surface. There were more on the slope below. The most important of these discoveries are shown in Fig. 68.

Judging from the profile, the sherd in Fig. 68: A probably represents a bowl of quite modern origin. The ware is brownish, the surfaces polished. The diameter is 15 cm.

Sherds B—R and S all represent vessels of Tiahuanaco type, Sherds B—M keros. As appears from the profiles of the various sherds, most of these keros had a horizontal ridge on the outer side with a corresponding groove on the inner side. Sherds N—O are from flaring-sided bowls with an opening diameter of 20—25 cm. Sherd O has had a rim boss. Sherds P—R are from bulbous vessels, and the two shown as S are from the drinking-tube of probably a cup-shaped vessel. The surface treatment is top-rate only on Sherd C. The surface here is

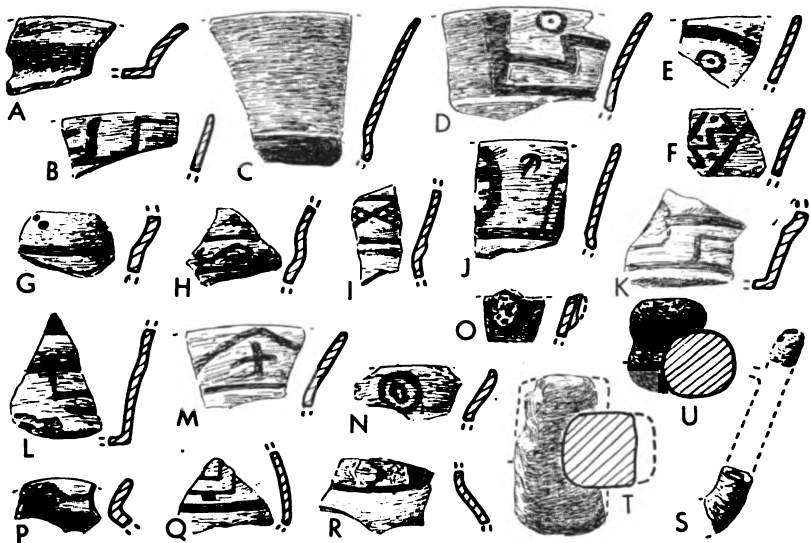


Fig. 68. Chulpani surface residue. 1/4.

smooth and comparable to that occurring on Central Tiahuanaco vessels of better workmanship. On the other sherds the surface is somewhat rougher. The outer side of all sherds has a coating of a more reddish shade than that of the ware. This coating also covers the inner side next the rim on Sherds C, D, J, M and P, and the whole inner side on Sherds B, E, F, N, and O. It is missing on the inner side of other sherds of Tiahuanaco influence. On Sherds B, E—I, K—Q, the decoration is solely in black, but white and black on Sherds C, J and R. On Sherd C white occurs as a thin edge line above the horizontal ridge painted black. On Sherd J the field between the two black vertical lines on the right has been coated with white. On Sherd R white occurs as vertical wavy lines together with black at the top and as edge lines for the black decoration. On Sherd D, besides white and black, also orange has been used. Thus the large field with a black circle is covered with orange. On the same sherd white occurs in the circular field as edge lines for the black decoration at the bottom on the right and as a horizontal line at the bottom. The outer side of Sherd P has also had painted decoration, now practically weathered away.

Two stone objects, one a pestle with square cross-section and the other a bola weight, both of fine-grained greyish rock, are shown as T and U.

The drinking-tube Sherds S a are of brown ware and have a weathered surface.

Except the sherd of a vessel of probably modern manufacture (A), the surface residue represents vessels showing pronounced Tiahuanaco influence both as to shape and decoration. The accumulation of a surface residue here also points to a permanent settlement at this site. This settlement may then be dated to the Tiahuanaco period. I shall revert to this in the following (p. 105).

Pit 1 (Figs. 69—70)

This pit was sunk 2 m square on the flat top of Chulpani 1 m from its eastern slope. When Grave 2 was found, the pit was extended over this grave (cf. map Fig. 69).

0—15 cm

Since the surface residue was quite numerous on the flat top of Chulpani, the objects from a 15-cm surface layer are considered separately. Here 45 sherds were located, four of which are shown in Fig. 70.

Sherd A is from the rim of a kero or small bowl. It is of the ware characteristic of Tiahuanaco pottery. The surface is rather well polished, and the decoration on the outer side is in black. Probably this sherd has a coating on both sides of a slightly redder shade than that of the ware. This also applies to Sherd C, which has a rim boss extending downwards on the outer side, and to Sherd D, which, however, lacks painted decoration.

Sherd B is evidently modern, rather corresponding to the so-called Pucara pottery, a type also manufactured locally in the Muñecas region, for instance in Amarete (cf. p. 22). The ware of this sherd is light greyish-brown. The inner side has a glaze, now greyish, and decoration in black.

Besides these sherds, there were also 15 olla sherds and 22 sherds of bowls or cups of brown ware, some with a reddish coating but with weathered decoration or without it.

15—50 cm

In this stratum traces of charcoal and scorched lumps of earth were noted.

Including those shown, no less than 323 olla sherds were found, 14 of which were bottom sherds while 11 had remains of ribbon-shaped ears.

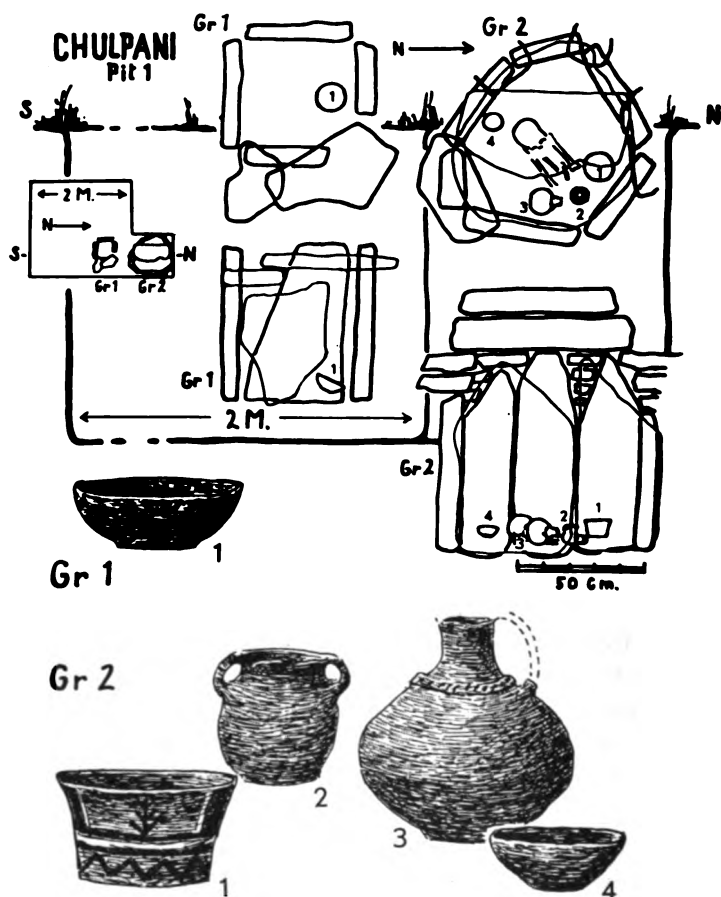


Fig. 69. Pit 1, Chulpani, with Graves 1 and 2. 1/4.

Besides the five sherds shown (A—E), which are not from ollas, there were the following sherds of brown ware: 11 bowl rim sherds with a profile corresponding to A; 21 sherds of rather indeterminate types, probably flaring-sided bowls or keros; 5 sherds of keros or flaring-sided bowls, two of which had traces of painted decoration in black.

Five bone fragments were also found.

Sherd A is from a semi-spherical bowl of brown ware with polished sides and decoration in black on the inner side. Sherds B and C represent bulbous vessels of the same ware and with polished outer side and painted decoration in black. The same ware recurs in the two Sherds D and E.

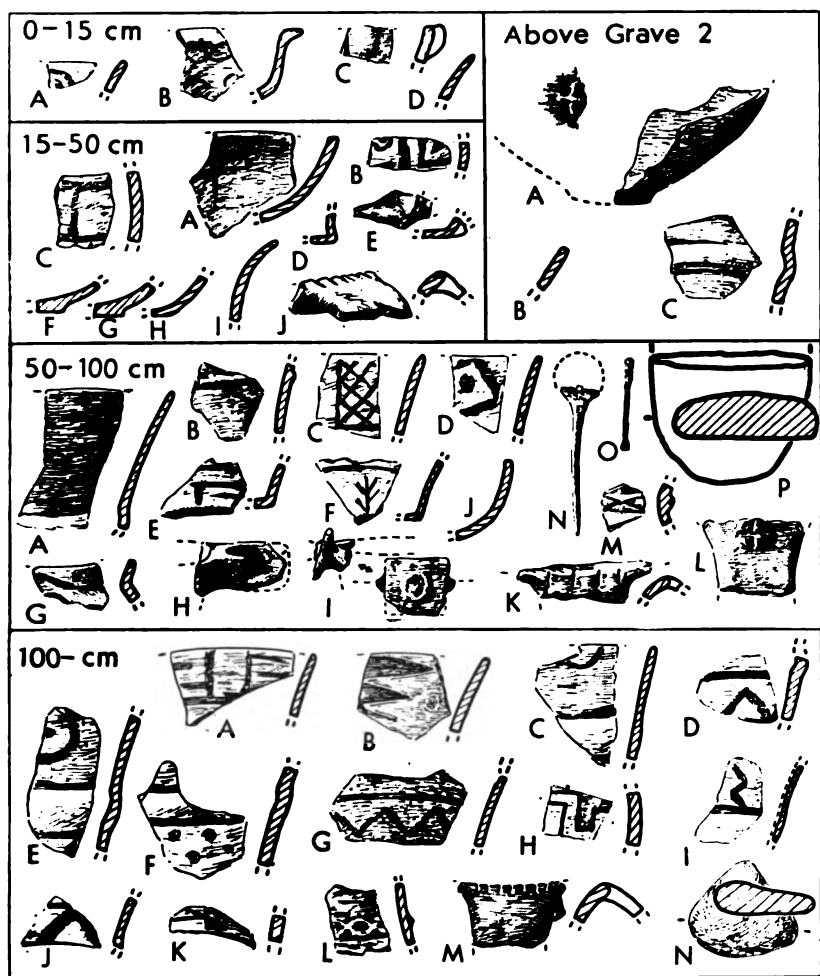


Fig. 70. Objects from Pit 1, Chulpani. 50+100 cm: P is 1/6, all others 1/4.

Of these Bottom Sherd D is represented by another similar fragment. They are probably from a vessel of kero shape. Sherd E, which also has a polished outer side, has part of an ear near the bottom.

Sherds F—H represent bottom profiles of sundry olla sherds.

Sherd I is from the neck of a vessel of olla ware; the opening diameter is about 12 cm; J a sherd of an olla rim and ear, where some incised lines across the rim can be observed.

At first three flat slabs placed edgeways were visible at this level in the northeastern corner of the pit; later appeared a few others placed horizontally and together forming a square. As the earth around the slabs was heavily scorched, it was at first assumed that a fire-place had been located. Traces of charcoal could be observed in the stratum examined, but especially around the supposed fire-place. The work was continued down to a level of 100 cm without disturbing the supposed fire-place or the earth in it. Since the slabs were found to reach deep into the earth below, it became increasingly evident that a slab-cist had been located — a fact also confirmed by the subsequent excavation.

In this stratum 65 bone fragments were found, of which two femur fragments from an adult far apart. The femur fragments were not found in the cist. The rest of the bone fragments were probably all of llama.

Besides the sherds shown or those mentioned here, the following sherds were found: 284 olla sherds, of which 25 with fragments of broad ribbon-shaped ears; 5 sherds of keros or flaring-sided Tiahuanaco bowls, three of which had traces of decoration in black. These five sherds had a ridge on the outer side with corresponding groove on the inner side. Further 38 sherds, the majority probably from the bottom or the side of keros or flaring-sided bowls, one perhaps from the side of a bulbous vessel with ware and surface treatment characteristic of the Tiahuanaco period; one ear fragment with circular cross-section and of the same ware as the last-mentioned.

Of the objects shown, Sherd H of the flaring-sided bowl with smaller side-bowl and another similar sherd were found at a depth of 55 cm immediately south of the grave; the two metal objects N and O near the bottom of the stratum examined.

Sherds A and B represent keros, C and D keros or flaring-sided bowls, E and F flaring-sided bowls. Rim Sherd G is from a bulbous vessel with an opening diameter of about 20 cm, Sherd H and another similar from a flaring-sided bowl with small side-bowl. Sherd I is probably the rim boss of a bowl with the head of a llama or a bird in the centre of the outer side of the disc (cf. *Schmidt* 1929 Figs. pp. 357—358). The ware of all these sherds is brown, their outer side probably coated somewhat more reddish than the ware. However, this coating is missing at the bottom of the inner side of Sherds A and G. The decoration everywhere is in black. This black colour covers the entire outer side except

the part farthest down on Sherd A. Both as to workmanship, shape and decoration, all of Sherds A—I show distinct Tiahuanaco influence.

Sherd J represents a semi-spherical type of bowl with a 15/20-cm opening diameter. Three sherds of this kind are of a ware practically identical with that of ollas, while the ware of eight corresponds to that of Tiahuanaco vessels with painted decoration.

Sherds K—M are all of olla ware. The rim above the ribbon-shaped Ear Sherd K has four traverse incised lines. On the ribbon-shaped ear L there is a boss with two crossed incised lines, and Sherd M and another similar sherd have a ridge with incised crosswise lines.

N and O are the metal objects earlier mentioned. Spectrum analysis showed that Topu N is of rather pure tin, while the metal in Pin o is bronze containing 10 per cent tin, 2 per cent silver and 1 per cent lead. Another small fragment of a pin corresponding to N was also found. This turned out to be of a bronze alloy of the same composition as that of object o.

Finally, P is a not preserved muller fragment with one flat grinding surface. It is of a greyish fine-grained rock.

100 cm and Deeper

From this stratum 60 bone fragments were retained, one of which may be a human femur fragment. The rest are probably llama bones.

Besides the sherds shown there were 153 olla sherds, 16 of which are bottom sherds and 15 sherds with ribbon-shaped ears. As to the latter, it seems as if the width of the ears is greater than on the corresponding sherds from the stratum above. Further, nine sherds not shown were collected, the ware of which corresponds to that of Sherds A—J and representing keros or flaring-sided bowls. Two of these sherds have faint traces of painted decoration in black on the outer side. One sherd has a remarkably fine reddish coating on the outer side and at the top of the inner side.

Sherds A—J are all of brown ware while the ware of Sherd K is slightly greyish. Probably a coating slightly more reddish than that of the ware appears on the outer side of most sherds. On Sherd H the lighter colour of the ware is seen in the field farthest to the left. The field to the right is painted in a darker shade than the angular centre field, which has the reddish shade of the coating. On Sherd B white occurs as decorative colour. Other sherds have decoration in black only. Sherd H is from a bulbous vessel, the other sherds from keros.

L and M are two sherds of olla ware. On Sherd L, a neck sherd, there is a ridge with indentations, and on Rim Sherd M incised lines across the rim above the ear.

N is a polisher of white translucent rock.

At a depth of about 150 cm there was no residue. Earlier it had been observed that the stratum containing lumps of scorched earth around the supposed fire-place deeper down extended over a large portion of the pit.

Grave 1 (Fig. 69)

This cist was left standing intact until the bottom stratum of the pit around it with no residue had been reached. During examination of the earth enclosed by the slabs, a few olla sherds and bone fragments, probably of llama, were found at the level of the upper edge of the slabs. At bottom level close by the northern slab a bowl (1) stood leaning slightly towards the north. This bowl is of brown ware with a somewhat more reddish coating and polished sides. The decoration on the outer side is in black.

After this examination it could be seen that the stratum containing scorched lumps of earth extended under the grave. Thus the grave had evidently been dug in an already extant culture stratum probably represented by the Tiahuanaco pottery found in the pit.

Grave 2 (Figs. 69—70)

During examination of Grave 1 some stones were revealed in the northern wall of the pit close by the grave. Since this could be another slab cist, the pit was enlarged northwards over the grave. Very soon, however, a slide occurred, and the stones first observed fell into the pit at the same time as others fell into the new cist. Since the roof slab also started to slide, this made work here much more difficult. Before the slide, however, some fragments could be picked out of the earth above the grave (Fig. 70: Above Grave 2: A—C). Sherd A is the large bottom part of an olla. On the bulbous part it has a cross in relief. Ten other olla sherds were picked up, two of which with ribbon-shaped ears. Sherd B is from a bowl with a 15-cm opening diameter. It is of light-brown ware with polished sides. Six other similar sherds were collected. Sherd C is from a kero with the horizontal ridge on the outer side and the corresponding groove on the inner side characteristic of the Tiahuanaco type. On the more reddish coating on the outer side there are traces of two black decorative lines above and below the ridge.

Owing to the great risk of further slides, the cist had to be examined through the hole under the southern roof slab caused by the tumbled-down wall slabs. The roof, constructed of two slabs placed one atop the other, was not laid bare until all objects had been sketched in on the map and picked up. The tumbled-down stones had smashed the cranium and other skeletal remains. The cranium lay in the centre of the cist, evidently having had its face turned towards the northeast. In front of the cranium some extremital bones could be seen lying horizontally. The tumbled-down slabs had also smashed Vessel 4, a bowl under which traces of charcoal were seen. In the northwestern part were three vessels (1—3), of which Vessel 3 was incomplete. It was lying on its side with its opening towards the north, while the others were standing upright.

Flaring-sided Bowl 1 is of brown ware with red coating on the outer side and the upper part of the inner side. The decoration on the outer side is in black-and-white. The surfaces are rather well polished. On the inner side there is a faintly marked horizontal groove.

Olla 2 is of greyish-brown ware with darker polished outer side.

The single-eared bulbous Vessel 3 is of greyish black ware with large lighter spots. Around the neck there is a flange with incised short slanting lines.

Bowl 4 is of brown ware with polished surfaces, black in spots.

The skeletal remains show that an adult, probably a male, found his last resting-place here.

After examination it appeared that the slab cist was located in the brown intact earth forming the bottom stratum of the pit. If Grave 1 was older, Grave 2 cannot be assumed to have been dug without damaging Grave 1. Thus Grave 2 is older than Grave 1, this also confirmed by Vessel 1 from Grave 2, which shows distinct Tiahuanaco influence.

Apart from a few sherds of late date found at surface, the sherds from Pit 1 show pronounced Tiahuanaco influence.

Like the surface residue previously dealt with, the objects from Pit 1 show that if a permanent settlement had existed at Chulpani — which is very likely, judging from the wealth of residue and the occurrence of a scorched-earth layer here — this settlement existed during the Tiahuanaco period and then probably in an epoch identical with the Decadent Period in the focal area of this culture. In that case Grave 2 would be contemporary with this settlement, while Grave 1 is of later date.

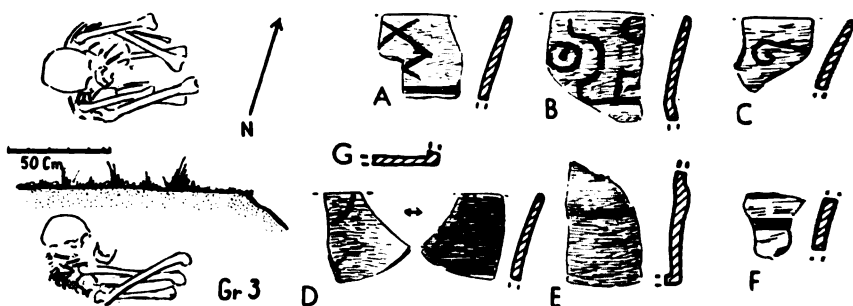


Fig. 71. Grave 3 and objects from test digging Chulpani. 1/4.

The graves on Kellikani later examined (pp. 105—110) may be attributed to the Tiahuanaco dwelling-site people of Chulpani.

Pit 2.

This pit was sunk about 2 m northwest of Pit 1.

When unpacking the collections, the objects from this excavation were missing. What is said here is based entirely on my diary notes. Owing to discovery of the graves at Kellikani the pit was sunk no deeper than .5 m. The pit measured 1 m in length and 1.5 m in width. Lengthwise it was oriented northwest-southwest. It was sunk in an effort to locate new graves.

At surface there were two fragments of stone mortars with a depression 25 cm in diameter, and a small spherical object. At a depth of 20 cm a stratum rich in rubble could be seen. In the earth under this rubble layer there were bits of charcoal and scorched lumps of earth. When excavation was discontinued, it seemed as if intact soil had already been reached.

Test Digging and Grave 3 (Fig. 71)

A test digging was made 7 m north of Pit 1. Since this area was sown, the test was made close by the edge of the eastern slope of Chulpani. At the very first stroke with a light pickaxe the skull of a cranium was found. It had the face turned east (cf. sketch in Fig. 71). The lower jaw and other skeletal remains lay under the cranium. The extremities were folded up indicating that the deceased had been buried in a sitting posture with his knees drawn up to the chin. Except for a femur, all extremital bones lay almost horizontally, the femur with the condyles

slightly higher, their orientation almost east-west. The difference of level between the cranium first found lying farthest out and the skeletal remains lying deepest was about .5 m. Apparently the cranium had been purposely deformed, the forehead being depressed. These skeletal remains probably represent a male. At the same level and around the cranium some stones were found, possibly remains of a cist wall. If this was not a spoliated burial (cf. *Rydén* 1947 pp. 398—402) it may be assumed that the grave originally had wall slabs but that these had been removed in the course of cultivation.

In the earth around the cist there were sherds, among others those shown as A—G in Fig. 71. All sherds represent keros except perhaps bottom sherd G, which may represent a flaring-sided bowl. In shape, decoration and workmanship all show Tiahuanaco influence. B is an extremely typical Tiahuanaco sherd. All sherds are of brown ware with a somewhat more reddish coating. This, however, is missing on the inner side of Sherds A and F. The decoration everywhere is in black. Black covers the entire outer side of Sherd D.

In the earth covering the grave there were also some olla sherds, including a flat bottom sherd. The other sherds are from the bulbous part.

The grave is probably of later date than the Tiahuanaco-type sherds found at the test digging. This fact is accounted for by the sherds of Tiahuanaco type being scattered about in the earth around the grave. Thus the deceased was buried in relatively late time at a dwelling site from the Tiahuanaco period. The fact that the skeletal remains, notwithstanding their surface location, were remarkably well preserved also indicates that the grave is of late date.

KELLIKANI

As mentioned earlier, Chulpani marks the end of the Kellikani ridge extending from Jutaraya (cf. p. 15, map Fig. 67).

The crest of Kellikani is an eroded rocky ridge sloping steeply towards south and west (Fig. 72). Northwards Kellikani rises towards Jutaraya, where also most of the graves were examined.

The graves here dealt with were located atop the southernmost point of Kellikani opposite Chulpani and north of a trail leading to Ayata.

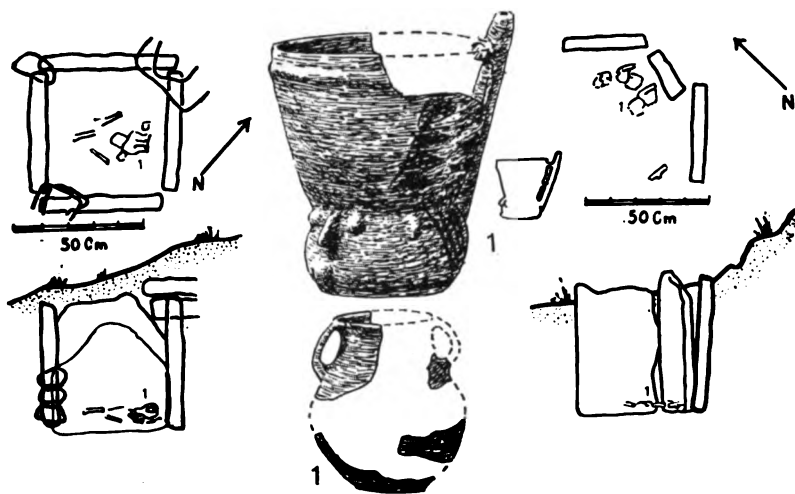


Fig. 72. Kellikani from the north. In background Chulpani.

These graves were concentrated to the steep western slope immediately below the crest, where the rock was covered with earth and weathering materials. If one follows a narrow path running along the crest, one sees on a stretch of slightly more than 100 m grave by grave, all more or less bared and damaged by erosion, probably also pillaged by looters. Here a total of 20 graves were examined. Of these, however, only six are included here, i. e. those containing residue. Two graves not included contained trifling skeletal remains. Another grave not shown here was found intact. Its location on the very crest of the ridge accounts for its escape from destruction. The roof slab lay about 50 cm below surface. There were seven wall slabs placed edgewise carrying a slightly dome-shaped super-structure of rough slabs placed horizontally. Neither were any objects found in the cist, nor any surface residue noted on the ridge having all these graves. Erosion had evidently removed all surface residue. On the map Fig. 67 all graves are marked, those excavated and shown here also numbered.

Grave 1 (Fig. 73)

Slab cist at the southernmost point of the ridge, not visible on the surface before excavation. The base of the northern wall slab rested directly on the rock.



Figs. 73—74. Graves 1 and 2, Kellikani. 1/4.

At bottom level there was a smaller olla (1) with its opening towards the northeastern slab, in the centre some fragments of extremital bones and teeth.

Some sherds of the vessel found here have evidently got lost in transit. According to my notes on this excavation, it might have been possible to reconstruct it practically in its entirety. Enough is nevertheless left to permit determination of its shape with certainty. The ware is greyish-black, the outer side polished.

The skeletal remains show that an adult had been buried here.

Grave 2 (Fig. 74)

Slab cist about 50 m north of Grave 1 on the west side about 1 m below the crest. Since only the eastern wall slabs were in situ, the grave had evidently suffered from erosion. These slabs were visible on the surface before excavation. The bases of the slabs were resting on bed-rock.

At bottom level there were sherds of a cup-shaped vessel with drinking-tube (1) and anthropomorphic decoration. This vessel was smashed, the drinking-tube lay to the south, the other sherds close by the northeastern wall slab. It is of brown ware with a somewhat more reddish coating on the outer side, a bit weathered but with traces of decoration in black. Below and parallel to the rim there is a hori-

zontal ridge with corresponding groove on the inner side. Eyes, ears and chin on the human face are executed in relief.

Both shape, decoration and workmanship of this vessel show Tiahuanaco influence.

Grave 3 (Fig. 75)

Slab cist 7 m south of Grave 2 and, like this, some distance below the crest. The wall slabs were visible on the surface before excavation. This grave, like the preceding, had suffered from erosion, wall slabs missing in the west. Also here the northern and eastern wall slabs rested on bedrock.

At bottom level a flaring-sided bowl (1) was standing. It is of brown ware with red-brown coating on the outer side and at the top of the inner side. About midway on the inner side and parallel with the rim there runs a faint groove. The decoration on the outer side is in black-and-white; the latter colour, however, is almost entirely weathered away.

Both as to shape and decoration the bowl shows distinct Tiahuanaco influence.

Grave 4 (Fig. 76)

Slab cist 5 m south of Grave 3. The site of this grave was just as exposed to erosion as the two last dealt with. Hence wall slabs were missing in the north. The westernmost of the preserved wall slabs were visible on the surface before excavation. At bottom level close by the



Figs. 75—76. Graves 3 and 4, Kellikani. 1/4.

easternmost slab there was a topu with its point slanting upwards (1), between this topu and the centre of the cist a couple of teeth and skeletal fragments.

Spectrum analysis showed that the topu is of bronze containing about 10 per cent tin, about 2 per cent silver and 1 per cent lead.

Grave 5 (Fig. 77)

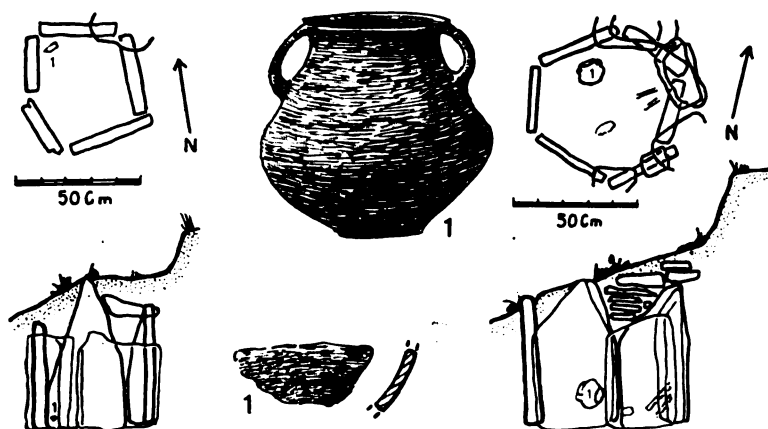
Slab cist 10 m north of Grave 2 on the western slope of the ridge and like the latter in a spot exposed to erosion. However, only one of the wall slabs was visible before excavation.

At bottom level close by the northern wall slab, one sherd of a large olla or aryballus-shaped vessel (1) was found. It is of brown ware with darker polished outer side.

Grave 6 (Fig. 78)

Slab cist 10 m north of Grave 5 and, like this, similarly exposed to erosion. The westernmost wall slabs were visible on the surface before excavation.

Lying in the north and near bottom level, an olla (1) was found, its opening towards the northwest, at a slightly lower level skeletal fragments, among others of a cranium. Two femur fragments were leaning against the eastern wall slab, this showing that the deceased had been buried in a sitting posture with his knees drawn up to the chin. The skeletal remains also show that the deceased was an adult.



Figs. 77–78. Graves 5 and 6, Kellikani. 1/4.

The olla is of greyish-brown ware with dark, almost black, polished outer side. Its shape is slightly asymmetrical while the ears differ in size.

Since the graves at Kellikani obviously had been severely exposed to erosion so that their present funerary earthenware might be only part of their original contents, too far-reaching conclusions from these objects cannot be drawn. However, it is worthy of note that the bowls found represent the flaring-sided Tiahuanaco bowl, while no traces of the probably later semi-spherical type of bowl were found. For these reasons the cists at Kellikani must relate to a habitation site dating from the Tiahuanaco period — probably Chulpani (cf. p. 104).

JUTARAYA

An account of the position of the Jutaraya range has been given earlier (p. 15). This range (Fig. 79) rises about 300 m higher than Markopata and 400 m higher than Mollo, which is put at about 2,800 m above sea level.

Excavations at Jutaraya were concentrated to the southernmost part of the range (cf. map Fig. 80). Here the highest point is an isolated hill in the southwest with fairly steep slopes and a top called La Torre, also flat and cultivated like the rest of the range. Immediately to the



Fig. 79. Jutaraya seen from the southeast (Mollo).

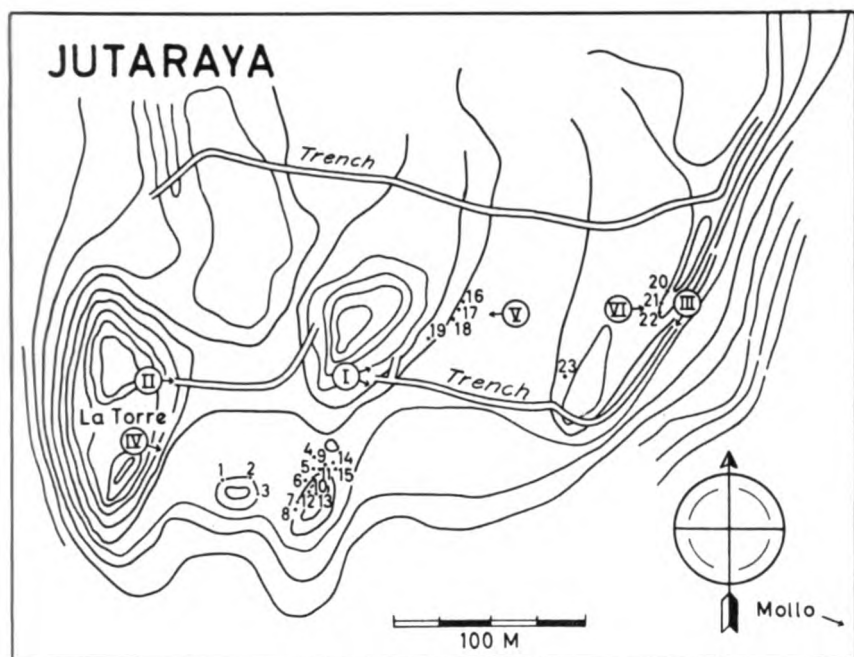


Fig. 80. Sketch map of southernmost section of Jutaraya's crest. Circle with Roman figure and arrow shows camera position for Figs. 81—84, 102 and 107.



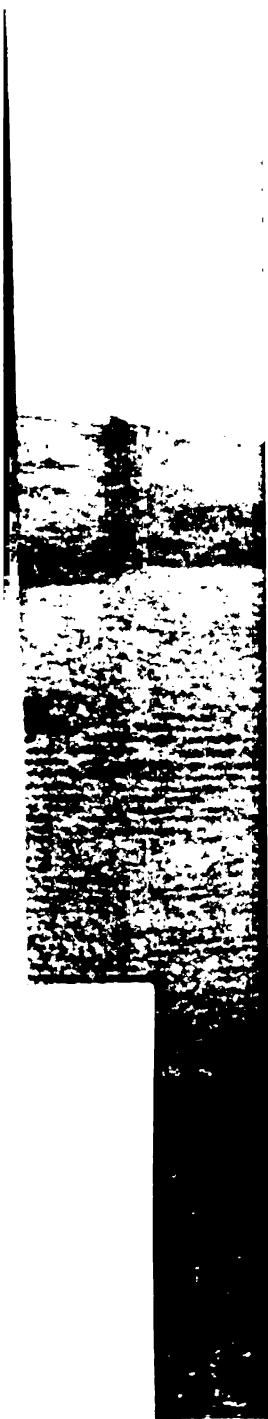
Fig. 81. Start of trench towards the east immediately below La Torre, Jutaraya. Camera position marked I on map Fig. 80.



Fig. 82. Trench on east side of Jutaraya. Camera position marked III on map Fig. 80.



Fig. 83. Elevation east of La Torre, Jutaraya, with Graves 1-3 at foot. In background the elevation with Graves 4-15. Camera position marked IV on map Fig. 80.





northeast of La Torre there is a depression in the terrain, also cultivated. Between the fields one often sees steep slopes with protective rock trips to lessen the erosion. However, only certain strips around the isolated hills of the Jutaraya range could be termed real ramparts.

A peculiar feature here are the lengthy deep trenches (Figs. 81—84) traversing the southern part of Jutaraya, also with a few interruptions following the eastern slope. The direction of these trenches is seen in the sketch Fig. 80. The non-Indian population assert that they were dug for defence — an explanation I am inclined to doubt since at least the eastern slope is steep enough to afford adequate defence facilities.

The trenches are about 1—1.5 m deep and 5 m wide. Earth parapets on either side indicate that they were dug. If these trenches had been built for defence, there would have been a parapet only on one of the sides. In fact, here and there these trenches suggest natural fissures.

On the top of Jutaraya, 23 graves were examined. Their position is marked on the map Fig. 80. The lack of surface residue is noteworthy.

Graves 1—3

At the base of an isolated hill east of La Torre in the southern part of Jutaraya, Graves 1—3 were examined (Fig. 83).

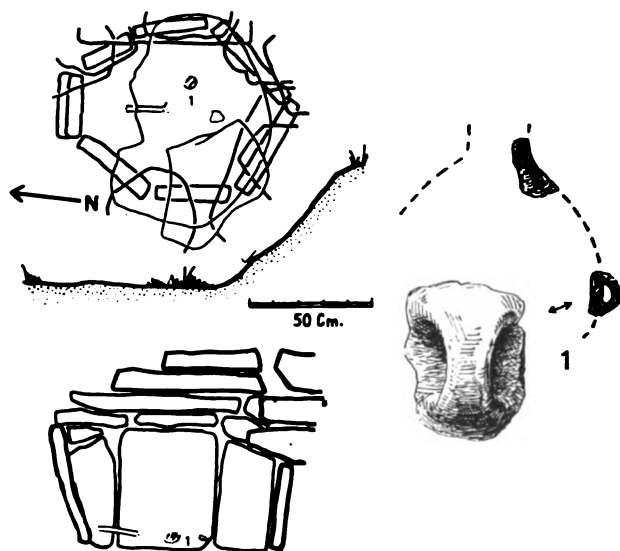


Fig. 85. Grave 1, Jutaraya. 1/2 and 1/6.

Grave 1 (Fig. 85)

Slab cist northwest of the isolated hill and right at the foot of it.

Before excavation its position was indicated only by a depression in the surface resulting from parts of the roof having fallen down into the grave, followed by parts of the earth cover. Part of the opening was still covered by a larger roof slab with another smaller on top of it.

At bottom level there were some bone fragments, including a large adult femur fragment, some sherds including a neck fragment and a sherd with ear of an aryballus or aryballus-shaped vessel (1). Sherds representing the bulbous part of the same vessel were also found but are not shown in Fig. 85.

The shape of the vessel represented by these sherds indicates Inca influence.

Grave 2 (Fig. 86)

Slab cist on the northern side at the foot of the same hill as Grave 1 but 20 m farther east. It was found just where the northern slope of the hill turns into a flat cultivated field. This grave was probably damaged during work in the field; thus the southern and eastern wall slabs were missing.

Faint traces of charcoal could be seen in the filling. At bottom level close by the northern slab a single-eared vessel (1) was lying on its side,

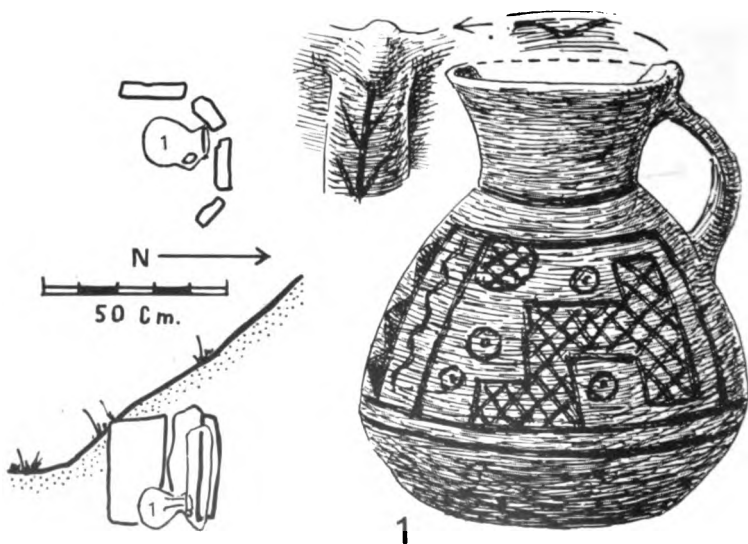


Fig. 86. Grave 2, Jutaraya 1/2.

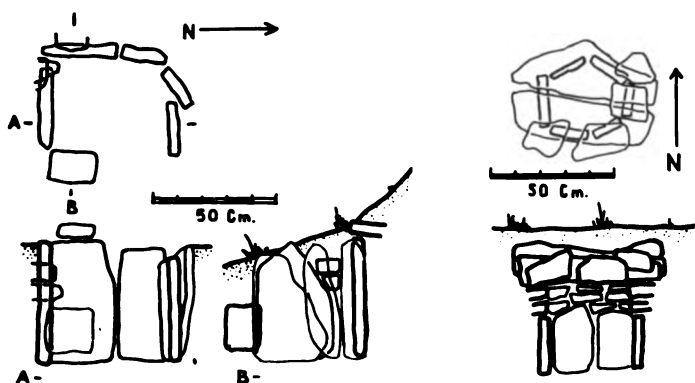
its opening towards the north. This vessel is of fine brown ware, its outer side well polished. The coating is somewhat more red-brown than the ware. This coating also covers the inner side of the rim. On the rim above the ear there is a small protuberance extending down the ear like a ridge. The painted decoration is in black. The same design is seen on both sides; thus the triangular line at the extreme left in the figure divides the decoration in two halves. The ear also has linear decoration in black. On the inner side of the rim there is a black wavy line.

The shape corresponds to that of types from Central Tiahuanaco south of Lake Titicaca. The painted decoration suggests a grossly degenerated Decadent Tiahuanaco design. The vertical triangular line and the wavy line parallel to it are elements characteristic above all of the Decadent Central Tiahuanaco style. Sherds with identical decoration were also found by Nordenskiöld during examination of a grave in Queara Valley east of the area here concerned (*Nordenskiöld* 1906 Figs. 17—18, 1953 Figs. 17—18). I shall revert to these discoveries in the following. The design shows probably a puma head in which case the circle upper left marks the nostrils.

Grave 3 (Fig. 87)

Slab cist on the eastern side of the same hill as Graves 1—2 and likewise at the foot of the hill.

Before excavation the position of the cist was indicated by a couple of wall slabs in the north and south and a horizontal slab placed above the remaining wall slabs in the west. In the east there were no wall slabs, only a square stone block at bottom level here marking the limit



Figs. 87—88. Graves 3 and 4, Jutaraya.



Fig. 89. Grave 5, Jutaraya, seen from the north after removal of the roof slab.

of the grave-chamber. The wall slabs in this direction were probably removed during cultivation of the field east of the hill, the boundary of which just passed over the grave.

This cist held no residue.

Graves 4—15

Graves 4—15 were examined north and west or on the top of an isolated hill east of the preceding. It is here called "the southeastern hill".

Grave 4 (Fig. 88)

Slab cist about 30 m out in a field northeast of the isolated hill at Jutaraya, where Graves 1—3 were excavated, and about 15 m north of the last-mentioned southeastern hill.

This cist was unusually small in size and well built. The two roof slabs were adjusted so that they covered the grave opening very well.

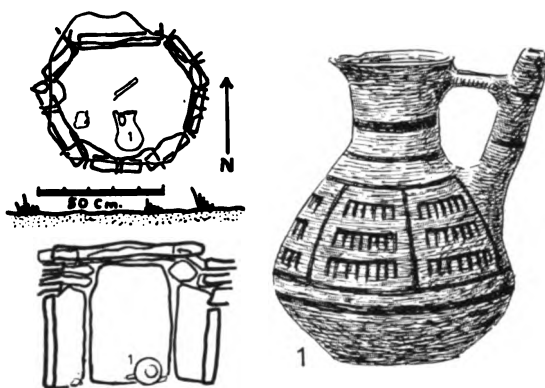


Fig. 90. Grave 5, Jutaraya. 1/4.

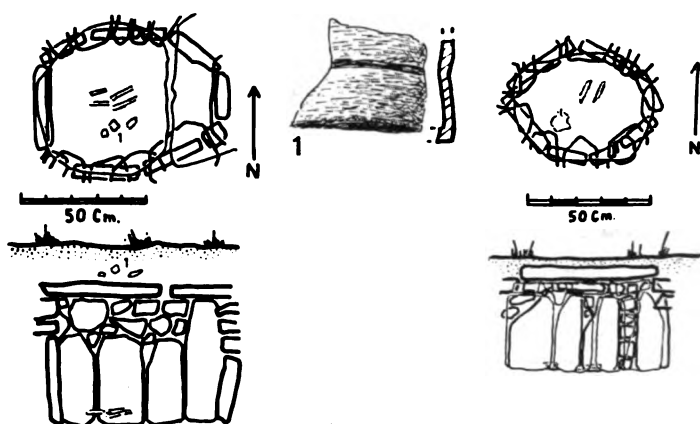
No residue was discovered in this grave. Its size indicates that a young individual had been buried here.

Grave 5 (Figs. 89—90)

This slab cist was located in the field 9 m south of Grave 4.

The cist was not filled with earth, and when the covering earth layer had been removed and the roof slab lifted away, the vessel which the deceased had got with him in the grave was fully visible. So were also the skeletal remains. The latter, however, soon crumbled away by the action of the air flowing into the cist. Remains of the cranium could be seen in the western part close by the wall slab. As far as could be seen, the cranium faced east. In the centre lay a large femur fragment. The vessel with drinking-tube (1) was lying on its side in the south, its opening towards the north. It is of brown ware and has a fine red-brown coating tending slightly to orange and carrying decoration in black.

The shape of this vessel resembles Central Tiahuanaco shapes. The painted decoration, however, is notably different from Tiahuanaco decoration as developed on vessels in the Mollo area. However, its application by way of a ribbon round the vessel corresponds to Tiahuanaco decoration. The fringe-shaped decorative design consisting of a horizontal line with short vertical lines on the underside has its parallel on Vessel 2 from Grave 8 at Markopata (Fig. 20: 2). As already pointed out, the vessels from this grave show distinct Inca influence.



Figs. 91—92. Graves 6 and 7, Jutaraya. 1/4.

Grave 6 (Fig. 91)

Slab cist located like the preceding in the field northwest of the southeastern hill, although in a more westerly direction about 5 m from its northern point.

In the earth above the two roof slabs there were sherds, including the one shown, probably representing a kero (1). This sherd has a well-polished outer side, probably also coated in the same red-brown as that of the ware. On the outer side traces of a horizontal decorative line in black can be seen. Other sherds found atop the roof slab might be from the bulbous part of an olla. They have the appearance typical of this vessel — greyish ware with darker polished outer side.

At bottom level there were four extremital bone fragments of an adult. Since they had been exposed to fire, these skeletal remains had dark spots.

In the joints between the eastern wall slabs clay mortar could clearly be seen.

The kero sherd (1) from the earth layer above the cist belongs to the Tiahuanaco culture, but, being probably surface residue, it could scarcely serve as basis for dating the cist.

Grave 7 (Fig. 92)

Slab cist located at the very foot of the southeastern hill, 20 m south of Grave 6.

In this cist, where only the bottom was filled with earth, the remains of a cranium of an adult lay in the southwest. Judging from the position

Of the cranial remains, the deceased had been buried with his face turned northeast. Two femur fragments lay parallel with each other in almost north-south direction in the centre. A gap between two wall slabs in the northeast was filled up with stones laid one atop the other.

Grave 8 (Fig. 93)

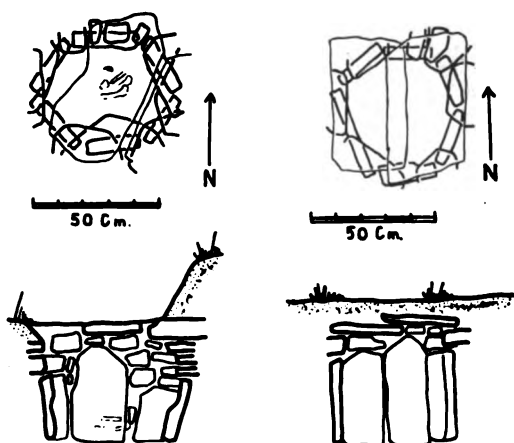
This cist, located at the very foot of the western slope, was the southernmost of those excavated on or nearby the central hill. Before excavation its position was indicated by the roof slab being partly visible on the surface. Part of the earth covering had also fallen into the grave so that the empty space between the filling and the roof slab was visible.

Some small animal bones were found at a depth of 35 cm in the earth below the roof slab. Concerning these skeletal remains Dr. N. G. Gejvall, of the Anthropological and Osteological Department, Museum of National Antiquities, Stockholm, makes the following statement:

»A right-sided half of a lower jaw with erupting milk dentition, both humeri, femurs, one tibia and one ulna, all from a *pupa*».

In the centre of the grave at bottom level the following skeletal remains were found. They were likewise determined by Dr. Gejvall as follows:

»Three skull fragments from the occipital region and left posterior part of the parietal bone; the suturefusion of both tabulae is far advanced and the diploe is broad and porous: Further, the following fragments of bones of the extremities occur: a right and left



Figs. 93—94. Graves 8 and 9, Jutaraya.

diaphysis of two thigh-bones respectively shin-bones belonging to the same individual. All fragments so far mentioned belong to a *human being*. The individual very likely was of middle age, and the relatively delicate muscle reliefs indicate a female.

»Fragments of two animal bones, one thigh-bone damaged in both parts of the epiphyses and a proximal upper part of the foreleg of a small horse or possibly of a species of camel».

From the above statements it would appear that this cist might be post-Columbian.

Grave 9 (Fig. 94)

Slab cist in the field north of the southeasternmost hill, 10 m east of Grave 4.

A thin layer of earth covered the bottom of this cist. No residue was noted. Two overlapping root slabs.

Grave 10 (Fig. 95)

Slab cist on the north side at the foot of the southeastern hill, 5 m east of Grave 6.

The bottom of this cist was filled with earth. Between this filling and the roof slabs there was an empty space of about 35 cm.

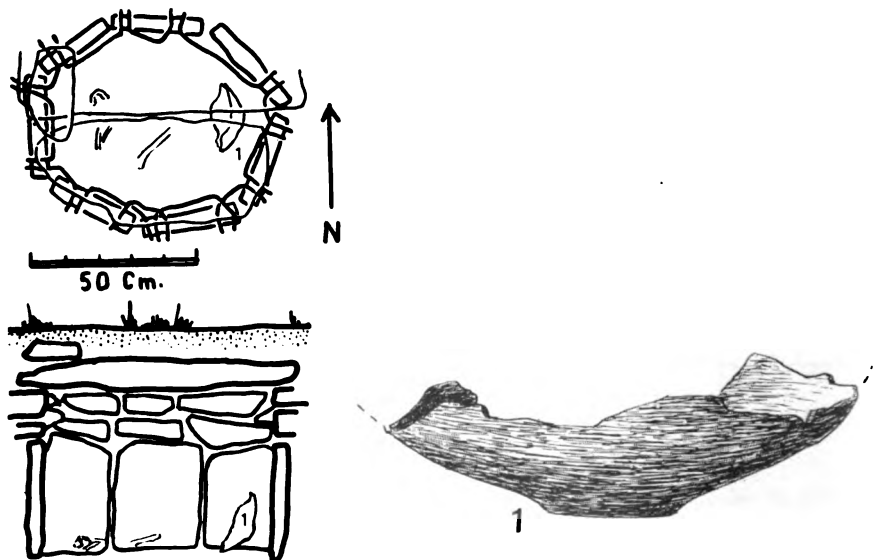


Fig. 95. Grave 10, Jutaraya. 1/4.

In the earth to the east, the bottom part of a large vessel, probably aryballus-shaped (1), was standing on edge, its bottom towards the east. The ware is greyish-black with a darker polished outer side, which renders it likely that this bottom part is from an olla. At bottom level there were scattered skeletal fragments, including bones of the extremities and ribs, in the northwest a fragment of a lower jaw with worn teeth indicating an adult, perhaps a woman. Among the skeletal remains also some sherds of probably the same vessels as that of the aforementioned bottom part were collected.

Grave 11 (Fig. 96)

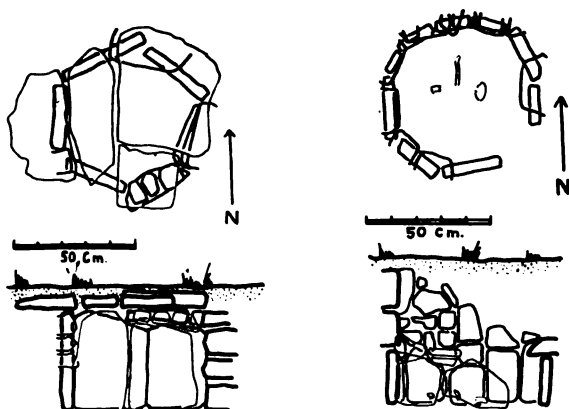
Slab cist in the field north of the hill in the southeast, 1 m from its foot.

The cist, not filled with earth, held no residue. One of the wall slabs placed vertically had been replaced by three rough slabs placed one atop the other. Roof of four slabs.

Grave 12 (Fig. 97)

Slab cist on the western slope of the southeastern hill.

The cist was filled with earth and stones. Slightly west of the centre of the grave in the bottom layer there were fragments of a heavy lower jaw with somewhat worn teeth. East of the centre there were cranial remains, and farther north a femur fragment probably of an adult male lying north-south.



Figs. 96—97. Graves 11 and 12, Jutaraya.

A great difference in height between the eastern and western walls could be noted. Moreover, the walls were made of stone blocks placed horizontally one on top of the other. Only the part forming the base had low slabs placed edgewise.

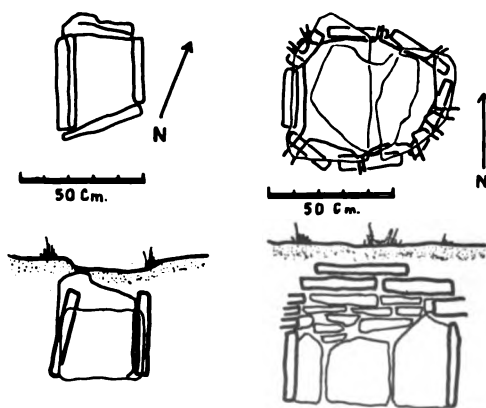
Grave 13 (Fig. 98)

Slab cist on the top of the southernmost hill 2 m east of Grave 12. Before excavation the position of the grave was indicated by a depression in the surface. The cist was constructed of four unusually thin wall slabs placed edgewise. This cist held no residue.

Grave 14 (Fig. 99)

Slab cist in the field north of the southeastern hill about 2 m northeast of Grave 9.

No earth filled the cist, hence the skeleton was fully visible as soon as the roof slabs — three in all, one covering the gap between the two underlying ones — had been removed. Unfortunately, the skeletal remains were picked out of the grave by two of my Indian helpers before they had been drawn in the sketch. They wanted thus to show their zeal when we others were resting for a smoke after our meal. The more the pity, since of all graves excavated in the Mollo area this one contained the best preserved skeletal remains. However, I observed before destruction that the cranium lay on the bottom of the grave in the west, its face turned east. Under the cranium there lay vertebrae, ribs etc., and in front of the cranium several bones of the



Figs. 98—99. Graves 13 and 14, Jutaraya.

extremities, crosswise or parallel with each other. The skeleton is of an adult female.

Between the wall slabs clay mortar could be observed. The position of the skeletal remains when found shows that the deceased was buried in a sitting posture with the knees drawn up under the chin.

Grave 15 (Fig. 101)

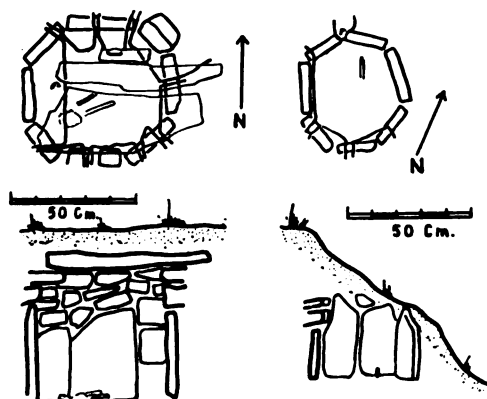
Slab cist in the field north of the southeastern hill, 4 m east of Grave 11.

This cist had no earth filling. Remains of a cranium could be seen in the west. The eyesockets were turned towards the north. In front of it were fragments of the lower jaw with worn teeth, in the centre femur fragments lying close together in a northeastern-southwestern direction. Other fragments of extremital bones were scattered on the bottom of the chamber. These skeletal remains represent an adult, probably male.

At bottom level there were olla sherds. The ware is greyish-black with polished outer side. A rim sherd of a bowl or cup of brown ware with faintly visible decoration in black-and-white on the outer side was also found. Since these objects definitely derive from the earth filling above, they are not shown.

Graves 16—19

Grave 16 was located on the eastern side of an isolated hill north of the one where Graves 4—15 were examined. On this same slope Graves



Figs. 100—101. Graves 15 and 16, Jutaraya.



Fig. 102. Eastern side of larger central elevation on Jutaraya with location of Graves 16—18 marked by some Indian helpers. Camera position marked V on map Fig. 80.

17—19 were also located, the last-mentioned, however, a few metres higher up (cf. Fig. 102).

Grave 16 (Figs. 101 and 102)

Although located in a spot extremely exposed to erosion, this cist was not visible before excavation.

A femur fragment of an adult lay close to the wall slab almost horizontally in a northwestern-southeastern direction.

Grave 17 (Figs. 102 and 103)

Slab cist 2.5 m south of Grave 16 on the same slope.

Evidently this grave had suffered from erosion and during cultivation of the field to the east. Thus the eastern wall slabs were missing.

In the centre of the cist the bottom part of an olla or aryballus-shaped vessel lay bottom up (1). It is of light-brown greyish ware with polished outer side. Under the bottom fragment there were traces of charcoal. For his journey to the world beyond the deceased evidently had been provided with fire, the embers of which had been raked together under the bottom of the vessel so as to make them last longer.

The embers were preserved for a C 14 test but spoiled in transit.

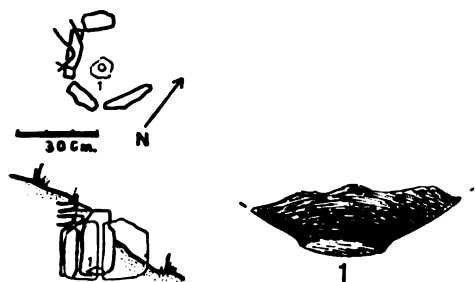


Fig. 103. Grave 17, Jutaraya. 1/4.

Grave 18 (Figs. 102 and 104)

Slab cist 1.25 m south of Grave 17 on the same slope. The roof slab was partly visible before excavation.

In the filling there were traces of charcoal. In the southern part stood an olla (1) of reddish ware with well-polished outer side decorated in darker red. Above this vessel there were a few fragments of extremital bones, including at least one femur fragment with condyles uppermost. North of the olla in the western part there was a topu (2). Spectrum analysis showed it made of bronze containing about 10 per cent tin, 2 per cent silver and 1 per cent lead. A fragment of probably a tibia lay horizontally close by the bottom of the olla. Cranial remains could be observed in the centre of the grave and at a slightly lower level than the knee part of the femur above the olla. These skeletal remains are of an adult.

The vessel suggests relatively late manufacture (post-Tiahuanaco).

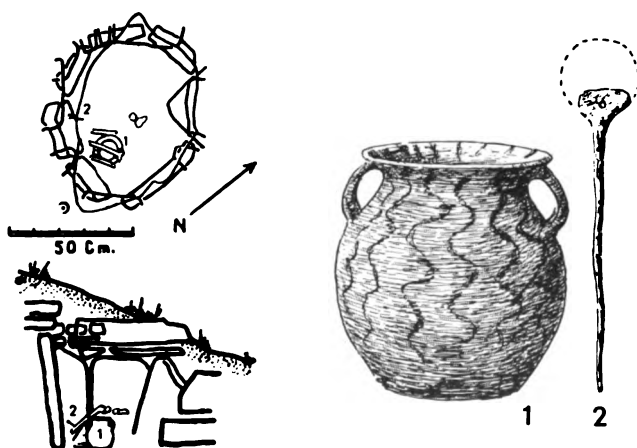
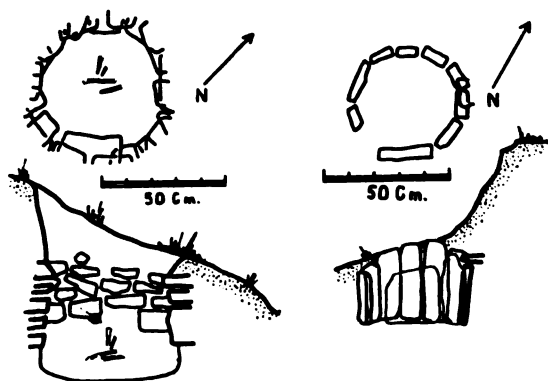


Fig. 104. Grave 18, Jutaraya. 1 1/2, 2 1/2.



Figs. 105—106. Graves 19 and 20, Jutaraya.

Grave 19 (Fig. 105)

This grave was located 10 m southwest of Grave 18, although, as pointed out, slightly higher up than Graves 16—18. Owing to erosion, although its highest wall slabs lay quite deeply embedded in the earth, part of the grave opening was bared. Possibly it had been looted.

The filling was extraordinarily soft but contained large stones which probably had belonged to the wall, this narrowing towards the opening and entirely constructed of slabs placed one atop the other. At bottom level slightly northwest of the centre of the chamber, one femur fragment and another fragment of an extremital bone were jutting up in a northwestern direction. Other extremital bone fragments were lying horizontally in the centre. Under these skeletal fragments there were some others, much mouldered. Clearly the base of the grave originally had walls of earth.

The skeletal remains show that an adult had been buried here.

Graves 20—23

Along the eastern edge of the east slope of Jutaraya a ridge extends south, ending in two low isolated hills. On the western side of these hills Graves 20—23 were located, Grave 23 on the west side of the southernmost hill (cf. Fig. 84).

Grave 20 (Figs. 84 and 106)

Cist 20 was the northernmost of the graves on the west side of the eastern hill immediately below the top. Before excavation two of the



Fig. 107. Graves 21 and 22, Jutaraya, seen from the west after completion of the examination. Camera position marked VI on map Fig. 80.

wall slabs were visible at surface. The wall of this cist consisted of a nearly complete regular circle of nine slabs placed on edge, and above these a horizontal slab in the east.

No residuc was noted in this cist.

Grave 21 (Figs. 84, 107 and 108)

During test-digging for additional graves on the same slope as Grave 20, the bottom part of a kero was found. This specimen seems to have been lost in transit. However, as regards shape it corresponded to the Tiahuanaco kero type.

Discovery of this sherd prompted continued excavation, in the course of which Graves 21—22 were located.

The wall of Grave 21 was not seen until after the first of the vessels in this grave (1) had been found. The rock formed the northeastern wall, in the north and south flat stones were placed horizontally one atop the other. There was no western wall, this indicating that the grave had suffered from erosion, probably also from cultivation of the field below.

The vessel first found here (1) is of kero shape, if anything. It is of greyish ware. The preserved base of a rim boss extends a little down the outer side just like a vertical ridge. Judging from the surface fracture, the rim boss has been quite large. The outer side is polished, ware and

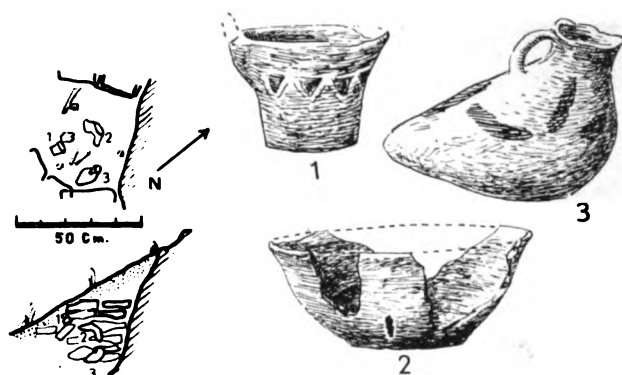


Fig. 108. Grave 21, Jutaraya. 1/4.

workmanship, however, rather crude. Traces of painted decoration, probably in black-and-white, can be seen on the outer side.

At a level below Vessel 1, Bowl 2 was found bottom up. This vessel had been smashed, and some sherds were missing. On the inner side there is possibly a reddish coating, the greater part of which, however, has weathered away.

At bottom level the asymmetric Vessel 3 was standing. It is of greyish ware and has a fairly well polished outer side. Some broad, dark-reddish lines on the outer side may indicate that the vessel is supposed to represent a bird.

Below Vessel 1 there were cranial remains. Bowl 2 was at the same level as a couple of extremital bones lying horizontally. At the same level a femur fragment lay leaning against the northwestern wall. Below were fragments of a jaw, with another close by the northeastern rock wall.

The skeletal remains represent both an adult with worn teeth and a younger individual. Thus, on one jaw fragment there are milk teeth — two molars. All extremital bone fragments represent the adult, from which may be assumed that the latter was first placed in the grave. Also, the jaw fragment of the younger individual may have got into the grave as result of erosion.

On the whole the vessels here suggest relatively late manufacture. The cup-shaped Vessel 1 with its presumably originally projecting large rim protuberance is a shape certainly dating back to the kero of Central Tiahuanaco but found in grave houses of stone (*Rydén* 1947 p. 349 ff. Fig. 142: E).

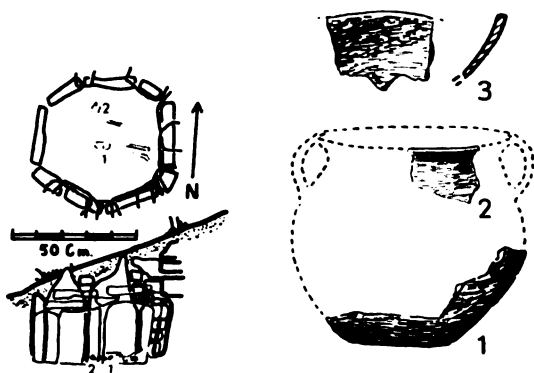


Fig. 109. Grave 22, Jutaraya. 1/4.

Grave 22 (Figs. 84, 107 and 109)

The kero bottom part earlier mentioned also led to discovery of Grave 22. This bottom part lay between Graves 21 and 22, approximately 1 m apart.

This cist was probably damaged by erosion. At bottom level in the east a femur fragment was leaning with the condyles against the wall slab. The bottom level was indicated by skeletal remains and a rim sherd (2) in the north and scattered olla sherds of greyish-brown ware. A bottom sherd (1) is about 1 cm thick, the wall sherds nearly everywhere only 2 mm. The outer side is polished and coated reddish. A rim sherd of a semi-spherical bowl (3), found somewhere in the filling, is of the same ware as that of the olla and has the same coating on both sides.

The skeletal remains are of an adult.

Grave 23 (Figs. 84 and 110)

Before excavation the position of Grave 23, earlier accounted for (p. 126), was indicated by a slight depression on the surface.

The filling contained a lot of stones, which made localization of the opening of this slab cist very difficult. The eastern wall was incomplete, in the west the lower part of the wall consisted of the rock itself or a large boulder. At bottom level near the centre were a small femur (?) fragment of an adult, a large topu with damaged blade (1) and a smaller pin with two holed heads, almost flower-shaped (2). Spectrum analysis showed that the two objects are of bronze containing about 10 per cent tin, 2 per cent silver and 1 per cent lead.

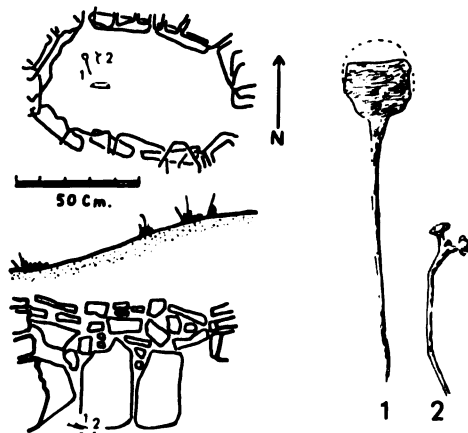


Fig. 110. Grave 23, Jutaraya. 1/2.

The graves at Jutaraya on the whole suggest a relatively late date. Beyond the vessels in Figs. 86: 1 and 90: 1?, there are no Tiahuanaco-influenced types. The workmanship of the two vessels mentioned here is fully comparable, perhaps even superior, to the best funerary earthenware from the Mollo area. However, the decoration on these vessels still suggests much more Decadent Tiahuanaco decoration than usually found on Mollo Tiahuanaco ware, as for instance on the flaring-sided bowls. It has also been pointed out that the decoration on the vessel in Fig. 90: 1 dates this vessel, hence also the grave, to a period under Inca influence.

Several of the graves at Jutaraya contained no funerary ware. Hence they seem to represent a more indigent population than that which buried its dead at Markopata or Kellikani, this, however, only an impression perhaps due to quite casual circumstances.

If the bones in Grave 8 were equine, this cist must be post-Columbian.

LA ISLA

Northeast of Mollo there are two other haciendas, Tarisquia and La Isla. Tarisquia is located on the same slope as Mollo and almost at the same altitude, while La Isla is about 200 m lower and farther to the northeast on a ridge-shaped outcrop extending into the deep valley leading past Mollo towards Ayata (Fig. 111, cf. pp. 15 and 20).

About 400 m southwest of La Isla, and slightly higher than the hacienda, a cist was excavated west of and quite close by the narrow road running from Tarisquia to La Isla. To all appearances this grave

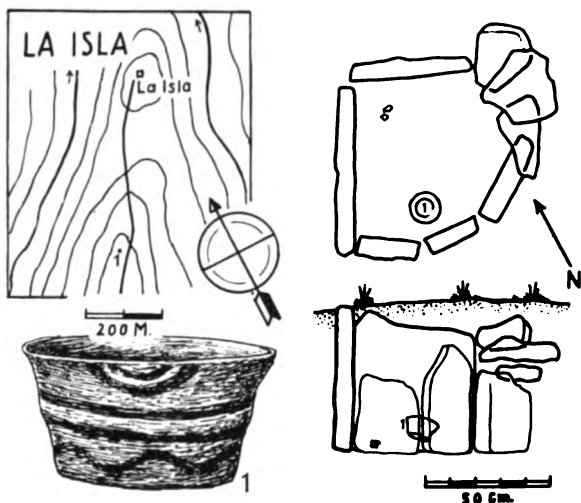


Fig. 111. Grave 1, La Isla. 1/4.

must have been the only one in this area so heavily exposed to erosion, its force demonstrated by the deep ravines on the slope on both sides of the patch where the graves were located.

This cist was discovered owing to a wall slab in the north being visible at surface before excavation (Fig. 111).

The cist, lacking roof slab, was filled with heavily packed earth, this rendering excavation very difficult. Two large slabs placed edge-ways seemed to constitute the northern and western cist wall; three smaller ones in a semi-circle plus three others placed horizontally one on top of the other marked the southern and eastern limits of the grave. About 50 cm below the surface, close by the southern wall slabs, a flaring-sided bowl (1) stood leaning slightly towards the centre. This bowl is of brown ware with a more reddish coating. The sides are rather well polished, especially the outer. On the outer side there is painted decoration in black-and-white. White occurs between the wavy lines below the rim and probably also between the two horizontal lines. A faintly outlined horizontal ridge on the outer side corresponds to a groove on the inner side.

This bowl shows distinct influence from the Tiahuanaco flaring-sided bowl; by the presence of the groove and the ridge also from the Tiahuanaco kero.

At the same depth as the bowl there were some faint traces of skeletal remains, at a level 5 cm deeper in the northern corner a few olla sherds.

SUMMARY

The graves examined in the Mollo area give an impression of uniformity. Any differences between, for instance, the graves at Markopata and those at Kellikani and Jutaraya are scarcely discernible; if so, it would be that the two latter sites are poorer, containing less funerary ware than the Markopata graves. This applies in particular to the graves at Kellikani. However, as to Kellikani, one has to bear in mind that much of the funerary ware may have been lost by erosion and looting.

There is indeed no reason to assume that, taken as a whole, the graves at any of the examined sites should be older than the graves at any other site. Hence the graves will here be dealt with collectively.

However, with shape and decoration of the funerary ware as starting point for dating, some chronological differences between graves at the same site are determinable. In the foregoing, after describing each grave, I have indicated its chronological position as well as the cultural influences revealed by the residue found. In the following I shall touch on the possibilities here afforded for dating and determination of the starting points for such culture diffusion as is shown by pottery manufacture in the Mollo area in pre-Columbian times. However, the construction of the graves concerned will first be surveyed.

The graves examined in the Mollo area are as a rule slab cists with a wall of four or more slabs placed edgewise, each one joining the next and forming a square or more or less circular chamber. Since the wall slabs are of different height, some lesser slabs have sometimes been added. They are placed horizontally so that the wall shows the same height round the whole chamber, fitting the roof slab tightly and preventing earth from getting into the grave. This super-structure is nearly always so constructed that each added slab overlaps the underlying one, giving the cist a dome-shaped top. When preserved, the roof generally consists of a single flat slab. Where two or more slabs have been used as roof, attempts have clearly been made to fit the slabs so as to obviate gaps permitting earth to get into the grave (Figs. 88, 94, 95, 96).

In the same way large gaps between the roof slabs have been filled with smaller stones — not shown in the sketches — or with a large

stone placed over the gap (Fig. 99). Sometimes a smaller slab lies on the large single slab covering the cist opening (Figs. 69: Grave 2, 85).

The area of cists with walls of four or five slabs placed edgeways is smaller than that of cists with more than five slabs. The smallest are probably children's graves (Fig. 18). However, cists of the same size also occur with walls of several slabs placed edgeways (Fig. 88) or with walls constructed of stones placed horizontally one atop the other — a wall construction which also will be dealt with later.

As shown by the analysis ending the description of most graves and the general survey below of the pottery discovered, dating of the graves is to a certain extent possible by using the funerary ware as starting point. Thus, part of the graves were evidently constructed during a period influenced by the Tiahuanaco culture in the region south of Lake Titicaca — the focal area of this culture. Other later graves derive from a period of Inca influence.

If graves indicated as older for the reasons mentioned above are compared with later graves, a trend to add to the number of slabs placed edgeways in the wall of the cist is noticeable. Thus slab cists containing Tiahuanaco-influenced types are constructed of four or five wall slabs placed edgeways (Figs. 11, 12, 19, 22, 33, 75?, 111?); later cists have more.

Where the wall slabs placed edgeways number five, two of these are often larger than the rest (Figs. 19, 22, 111). The two larger slabs may also be placed in such a way as to form an almost right angle (Figs. 22, 111). Hence these graves in a still higher degree represent an intermediate type between the square ones and the more circular ones with six or more slabs for wall. The incidence of Tiahuanaco-influenced pottery in these graves of the intermediate type also confirms the fact that, as time passes on, there is a trend to increase the number of wall slabs.

Less common is the grave where the wall is made entirely of rough slabs placed horizontally one atop the other (Figs. 13—15, 26, 29, 43, 44, 99, 105). Also in graves of this type one side may consist of the cliffside or of a large boulder (Fig. 108). As no distinctly Tiahuanaco-influenced pottery was found in graves of this type but exclusively pottery of a later type — semi-spherical bowls for instance — this type of grave must be relatively late.

Grave 28 (Fig. 47) at Markopata occupies a peculiar position. This cist is square and, judging from the residue, of late date.

In some instances (Figs. 28, 45, 53) a floor of flat slabs has evidently been laid in the cist — a fact not limited to any particular type. Some of the cists at Kellikani (Graves 1—3) also have the rock as floor or as foundation under one or more wall slabs.

In one instance a grave may have been outlined on the surface by a circle of stones placed edgeways (Fig. 31).

The majority of the graves examined were located at some depth below the surface. Surface graves almost without exception lack roof slabs, also the dome-shaped super-structure of horizontal slabs placed on the upright wall slabs. As a rule the top of one or more wall slabs was visible on the surface before excavation, thus indicating the position of such a grave. Almost without exception these surface graves have had a location severely exposed to erosion. Thus, when bared, the Indians removed the roof, often wholly or in part also the chamber walls, these evidently hampering their cultivation work. However, as appears from the descriptions here given, the funerary ware has been left intact. Otherwise the Mollo Indians show marked respect for the graves they come upon and for their contents. Every morning before starting to aid me with the excavations, they had to offer coca, cigarettes and liquor to the "chullpas". This was done by burying coca leaves and a cigarette stub in the field where the examinations were to take place, whereupon the liquor was poured over the same spot. The Indian who picked up the Inca aryballus shown in Fig. 112 from a grave bared by erosion dared not keep it at home but hid it in a field near his hut.

Judging from the heaviest earth layer covering a grave, it would seem that these layers as a rule originally had a depth of about 1 m.

Hill tops and slopes — i. e. areas extremely exposed to erosion — seem to have been preferred as burial sites. In the course of the excavations the impression was gained that erosion now has been at work sufficiently to reach grave depth at several sites. Obviously, many graves in the Mollo area have already entirely eroded away. How many are left is impossible to estimate, but at the Kellikani, Chulpani and La Isla sites, for instance, the impression is that the majority here are already done with.

With the exception of a few graves farther down in the valley east of Mollo and examined by Carlos Ponce Sanginés, no further graves seem to have been located in the environs of Mollo. This confirms the assumption that settlement in ancient times had about the same distribution as at present. Indeed, the gently sloping ground here con-

cerned with its resultant agricultural possibilities has topographically destined this tract for settlement.

Evidently no discrimination between male and female, nor children, was made in the manner of burial itself. Also graves which, according to size and skeletal remains found, must be children's graves — Grave 6 (Fig. 18) for instance — contain pottery similar to that in the larger graves with skeletal remains of adults. However, topus probably mark female burials.

The position of the skeletal remains and frequently also the size of the grave-chamber show that the deceased was placed in sitting posture with knees drawn up to the chin. Attempts were evidently made to place the deceased so as to face east — towards the rising, warming sun. The excavations in the Mollo area yield no evidence showing that the body, like the dead in the stone and adobe tombs in the highland region south of Lake Titicaca, was wrapped in basketry. The topus would point to the fact that women at any rate were buried dressed in their wearing apparel.

There is an obvious difference between the graves in the Mollo area and the grave houses in the southern part of the Lake Titicaca basin and likewise those graves and their funerary ware examined by *Nordenskiöld* (1906, 1953) east of Mollo. In the Mollo area practically only pottery and metal objects have been preserved. Also skeletal remains are missing in many graves. Graves in the two other areas mentioned often contain objects of more perishable material such as wood, etc. But then the graves here are not, like the Mollo graves, located below surface. Also the rainfall is heavier in Mollo.

Only the largest graves are of a size permitting burial of more than one individual. Grave 19, so rich in residue (Figs. 33—37), is the best example of a grave being used on several different occasions.

Funerary ware probably contained food and drink, which the deceased was supposed to need for his journey to the other world. Small olla-type vessels may represent similar but larger pottery in everyday use. Occasionally there is evidence of fire having been placed with the deceased in the grave. To make it last the embers were covered by the bottom of a bulbous vessel or perhaps a bowl, the bowl when found lying bottom up (Markopata: Grave 28, Fig. 48: 17, Jutaraya: Grave 17, Fig. 103: 1). The often heavy admixture of charcoal in the filling of the cist may point to the same fact. Only in rare cases

seems the deceased to have been provided with objects of everyday use, as for instance a tumi (Fig. 58: 2), spindle-whorls (Figs. 26: 3, 48: 19), a potter's tool of llama jaw (Fig. 48: 20), a stone pestle or perhaps a bola or bola weight (Fig. 49: 10). Regarding the last-mentioned objects, it is doubtful whether they are part of the original funerary requisites. This may also apply to the pestle or grinding-stone found in Grave 20 at Markopata (Fig. 38: 1).

The region immediately south of Lake Titicaca is generally regarded as the centre of the Tiahuanaco culture. The influence of Tiahuanaco ceramic styles on Mollo pottery is striking. In the first place the flaring-sided bowl so characteristic of the Central Tiahuanaco area has been used as model. However, the kero too has been copied, although not to the same extent (Figs. 35: 25+47, 36: 54, 108: 1?). Also it seems as if these models rather belonged to the types of the Tiahuanaco Decadent Period.

It is impossible to prove any grave to be older than those containing Tiahuanaco-influenced types.

The following details characterize the *Tiahuanaco-influenced pottery* of Mollo.

On the kero from Central Tiahuanaco there is frequently a horizontal groove on the inner side, in most cases also marked by a corresponding horizontal ridge on the outer side. This groove also recurs on Tiahuanaco-influenced Mollo vessels, here both on keros (Figs. 35: 25+47, 36: 54) and on flaring-sided bowls (Figs. 22: 1, 40: 3, 69 [Grave 2: 1], 75: 1, 111: 1). If there is a similar ridge on the Mollo vessels, it is often extremely faintly marked (Figs. 22: 1, 111: 1). At the point of the ridge one finds a couple of parallel horizontal lines in black as decoration, also an intermediary line, originally probably white (Figs. 11: 3, 12: 1, 19: 1, 35: 25+47, 36: 54, 40: 3, 41: 1, 111: 1), also when a groove is lacking on the inner side. The fact that a groove occurs on flaring-sided bowls of Mollo would show that this type also is an imitation of the kero of Central Tiahuanaco, where this detail is usual on keros but missing on flaring-sided bowls. It also proves that Mollo flaring-sided bowls in practice filled that function of drinking or libation vessel which in Central Tiahuanaco was shared by the kero and the flaring-sided bowl.

A variant of the flaring-sided bowl of the Tiahuanaco era typical for Mollo is the vessel provided with a smaller bowl on the outer side below the rim (Figs. 36: 39 [sherd], 36: 44, 36: 52, 41: 4?, 56: 2, 56: 11, 61: 4 [sherd]). There are two different ways of attaching the smaller

bowl to the larger one. The smaller bowl is joined to the larger either with its entire side (Figs. 36: 39 [sherd], 36: 52, 61: 4 [sherd]) or by two connecting pieces (36: 44, 41: 4?, 56: 2, 56: 11). On another variant of this type, known by me only from the collection brought together at Mollo by Carlos Ponce Sanginés, two large equal-sized flaring-sided bowls have been joined at the rim. The smaller bowl has been placed between the larger ones at one side of the junction. A variant of this latter shape was recently depicted by *Ibarra Grasso y Bramisa* (1956 *Ceramica Mollo*, Fig. 3).

The relationship between the Mollo flaring-sided bowl with smaller side-bowl and the flaring-sided bowl and kero of Central Tiahuanaco is demonstrated by the fact that also on the Mollo type there is a horizontal groove midway on the inner side (Figs. 36: 44, 56: 2, 56: 11). On these vessels the groove is also marked on the outer side by an occasional very faint horizontal ridge (Fig. 56: 11), more often by painted horizontal lines as on the flaring-sided bowls (Figs. 36: 44, 56: 2).

As will appear from the following, there is every reason to assign the semi-spherical bowl to a date later than the Tiahuanaco-influenced type of bowl. A semi-spherical bowl with, however, a smaller side-bowl was found in Grave 30 at Markopata (Fig. 52: 1). This vessel, like the sherd Fig. 65: j, shows how the side-bowl on a later type was reduced to a rudiment not much larger than a rim boss.

The flaring-sided bowl with smaller side-bowl was probably used for some special magical purpose or as libation vessel like the *pacchas* and *keros* (*Lothrop* 1956). The flaring-sided bowl with smaller side-bowl has also a modern counterpart — two communicating flaring-sided bowls of wood, used by the Aymara Indians as a libation bowl. I don't know, however, the exact use of these twin bowls and another version of it — a wooden bowl with duplicate wall and one or two standing oxen carved out in its centre. The inner wall is holed, permitting the liquid to pass in or out from the inside bowl into the surrounding groove.

Rim bosses are unusual on *keros* and flaring-sided Central Tiahuanaco bowls. However, they are more common on the Mollo Tiahuanaco-influenced pottery. Thus the kero in Fig. 36: 54 is provided with a rim boss like the flaring-sided bowls shown in Figs. 12: 1, 64 (Grave 41) and 108: 1. Owing to its workmanship the vessel from Grave 41 at Markopata (Fig. 64) occupies a peculiar position but should be mentioned in this connection. The large preserved base of the rim boss on the kero in Fig. 108: 1 shows that the rim boss was sizable

and probably jutting far out. As already mentioned, a similar vessel was found in the square grave house of stone in the Titicaca region (p. 128). Since these tombs were in use at the time of the Conquest, this kero variant must be of late date. The shape of the fragmentary bowl (Fig. 108: 2) in the same grave also speaks in favour of such a late dating. The rim boss on Tiahuanaco keros and flaring-sided bowls is a sign of the decadence on the whole marking the marginal areas of this culture, as also shown by the Tiahuanaco-influenced pottery of Mizque Valley (*Rydén* 1956, p. 111).

Another sign of decadence of the Mollo flaring-sided Tiahuanaco bowl is its appearance with ear (Figs. 41: 4, 65: c). This type may be regarded as a parallel to the single-eared semi-spherical bowl (Figs. 18: 1, 36: 42), a type to which I shall recur (p. 143). Concerning the vessel in Fig. 41: 4, however, it must be pointed out that, as appears from its description, this might be a flaring-sided bowl with a knocked-off smaller side-bowl. Also Sherd 65: e is doubtful.

Another Tiahuanaco-influenced type characteristic of Mollo and the entire Muñecas region is apparently also the kero with drinking-tube (Figs. 12: 2 and 3, 19: 2, 42: 5 and 9, 55: 3 [this vessel lacks Tiahuanaco-influenced painted decoration] 56: 5+8, 74: 1). The fact that the protuberance was a drinking-tube and not a spout has been pointed out earlier (*Rydén* 1954, 1955). In this connection some other vessels were mentioned, confirming the assumption that the kero with drinking-tube was in all probability typical of the Muñecas region. The relationship to the kero of Central Tiahuanaco (cf. *Ponce Sanginés* 1948) is emphasized by the fact that a human face in relief occurs on the outer side opposite the drinking-tube (Figs. 12: 3, 55: 3, 74: 1). On one of the Mollo keros with drinking-tube this face in relief has been replaced by a much conventionalized painted face (Fig. 56: 5+8).

Obviously, the drinking-tube is a detail taken over from a type of bulbous vessel with drinking-tube occurring in the focal area of the Tiahuanaco culture (*Bennett* 1934 p. 418, *Rydén* 1947 p. 75). This type is also represented among the Mollo vessels (Figs. 11: 2, 56: 12, 90: 1). The decoration is much weathered so that its original appearance shows on only one of the specimens (Fig. 90: 1) where, as already pointed out, it suggests influence by the geometric Inca decorative style.

A Mollo vessel of the type here last dealt with, now in the Carlos Ponce Sanginés Collection in La Paz Museum, has a protuberance shaped like an animal's head on the side opposite the drinking-tube (*Ruben* 1952 Fig. 39: III).

On the whole the Tiahuanaco-influenced Mollo types with drinking-tube give a very definite impression of decadence. However, a kero with drinking-tube in the La Paz collection just mentioned, with its face in relief and painted decoration on it, resembles more the Central Tiahuanaco region's Decadent kero with face in relief.

In the foregoing we have dealt mostly with the similarities in shape between the Tiahuanaco-influenced pottery of Mollo and the Central Tiahuanaco pottery. As to the painted decoration, the similarities are less obvious.

Evidently, in decorating the Tiahuanaco-influenced types of Mollo, only two colours — black and white — were used. As a rule — certainly always in the beginning — this decoration was applied on a coating more reddish than the brown ware. When missing, it has probably only weathered away. On the inner side it covers as a rule only a strip next to the rim. Consequently, the use of coating corresponds effectively to Central Tiahuanaco pottery.

The decoration in black consists of zig-zag lines, squares or rhombs filled with a network of black lines or a circle with a central dot, with triangles entirely delineated or indicated by edge lines or by parallel horizontal lines, etc. The vessel shown as 36:44 is the one which as to workmanship of the decoration comes nearest the Central Tiahuanaco Decadent vessels. Also here the difference is great, however. Besides the triangular lines on the vessels in Figs. 36:44, 36:52 and 41:1, they have actually only a single decorative design in common — the rim decoration of single or double semi-circles sometimes with a preserved white line between the two black ones (Figs. 12:1, 19:1, 41:1 and 4, 56:2, 111:1). However, since this decoration, as appears from the following, also recurs on Mollo vessels of a later date, the occurrence of this decorative design alone is not sufficient to date a vessel, and hence a grave, to the Tiahuanaco era. I shall later revert to certain other details concerning the Tiahuanaco-influenced pottery.

Since the white decorative paint has frequently weathered away, it is difficult to determine exactly to what extent this colour was used.

Among the Mollo vessels the Tiahuanaco-influenced pottery is the oldest dateable. The latest group comprises vessels or sherds showing style characteristics so typical of *Inca* that they would have to be regarded as imports or perhaps as representing an intrusive population group in the Mollo area — the Inca conquerors. In this group should also be included such vessels as are obvious copies, in shape and decoration, of Inca types.



Fig. 112. Aryballus found by an Indian in a slab cist, Mollo. 1/6.

As already mentioned, the aryballus shown in Fig. 112, typically Inca in shape and decoration, was acquired from an Indian at Mollo. The Indian had found the aryballus in a cist on the hill at Markopata, where Graves 22—25 were examined. All traces of the grave had now been completely obliterated by erosion. All the Indian could tell was that there had been walls of slabs placed edgewise. This vessel is of brown ware with a more reddish coating. The decoration is in black-and-white. According to information from Carlos Ponce Sanginés, a number of similar discoveries have been made of purely Inca aryballi in graves in the Mollo area. A few sherds from Grave 35 (Fig. 58: 1) also indicate that this grave originally had contained a small aryballus of pure Inca type. In other respects the Inca culture is also represented in the Mollo grave here concerned by vessels that may be regarded as rustic local copies of Inca types — that is then mostly the aryballus. We also come across imitations of the Inca geometric style of decoration. Among the surface residue, however, are sherds — as earlier mentioned (p. 20) — which no doubt also must be classified as pure Inca. Single Inca sherds were also found in the graves (Figs. 15: 1 and 4, 37: C?, 48: 3) but these latter sherds probably do not represent vessels belonging to the original funerary ware.

As already mentioned (p. 32), we come across a rustic copy of the geometric Inca decoration on the two vessels from Grave 8 at Markopata (Fig. 20: 1—2). The Inca influence is seen in the horizontal triangular lines with white edge lines at the bottom, likewise on a vessel

from Grave 24 (Fig. 42: 3). The black-and-white decoration of wavy lines on the inner side of the rim goes back to similar rim decorations on Tiahuanaco-influenced vessels. An exact parallel as regards shape of one of the vessels here dealt with — the twin vessel (Fig. 20: 2) — was found by Nordenskiöld (1906 Fig. 4 pp. 12—13, 1953 Fig. 4 pp. 32—33) in a grave in Pelechuco Valley east of, but relatively close by, the Mollo area. This grave, however, was not a sub-surface grave but a grave house of four large slabs set edgewise with a fifth as roof. Thus, apart from the fact that the graves in the Mollo area are sub-surface, the construction corresponds to those of Mollo. However, the decoration in black on the twin vessel found by Nordenskiöld shows no Inca influence. Around the neck of this vessel there is a zig-zag line — a decorative detail which, among the Mollo specimens, recurs on the Tiahuanaco-imitated flaring-sided bowls (for instance Fig. 11: 3). On the bulbous part there are crudely done spirals, a decorative design lacking on the Mollo specimens but appearing on the Central post-Decadent Tiahuanaco pottery (Rydén 1947 Fig. 39: H pp. 160—161). The twin vessel from Pelechuco Valley thus also points to a late date. As to shape, the twin vessel here dealt with has no Inca parallels. The twin shape rather suggests types from the Peruvian coast, although I have not been able to locate any direct parallel (cf. Bennett 1939 Figs. 13: g, 22: e, 1944 Fig. 32: 1—2, 1939 Fig. 13: g, Schmidt 1929 Fig. p. 215). It has also a counterpart in pottery from Valle de Tarapaca in northern Chile. Thus Latcham (1938 Fig. 91:1) shows a specimen lacking the drinking-tube of the Mollo type and with both necks of anthropomorphic shape but for the rest of the same appearance as the Mollo vessel. Can the appearance of this complicated type of vessel in the Mollo area and Pelechuco Valley be attributed to Callahuaya ramblings, its manufacture at Muñecas having commenced on models noticed by Callahuayas in the Peruvian coastal area?

Vessel 2 from Grave 12 at Markopata (Fig. 26: 2) may be regarded as the copy of an Inca aryballus. True, the bottom part is differently shaped, but on this vessel we again find the narrow long neck and the strap lug on one side just below the neck. Sherds of aryballus-shaped vessels have also been found in other graves (Figs. 32: 3, 48: 1). Possibly the vessels in Fig. 56: 4 and Vessel 2 from Grave 39 (Fig. 64), although still more degenerated in shape, could be regarded as imitations of Inca aryballi. Where the strap lug is generally placed, the latter vessels have instead two faint protuberances. In one instance they have two cross-wise incised lines (Fig. 64 Vessel 2 from Grave 39). Pairs of bosses of

... shape also occur on vessels of another type, i. e. on single-eared vessels (Fig. 41: 8). A common feature of all the last-mentioned vessels is also an incised zig-zag line or a fret-like row of incised crosses with crossing zig-zag lines — around the neck.

In fact, when dating Mollo pottery and graves, Tiahuanaco-influenced and the influenced types indicate the extreme chronological limits in one way. As already mentioned, graves older than Tiahuanaco have been impossible of proving. Only two of the graves might be post-Columbian, i. e. Grave 15 at Markopata and Grave 8 at Jutaraya. In this case the post-Columbian date would be indicated in the former grave by the decoration on a vessel found there, and, in the latter, by the presence of animal bones including horse, but as the dog's race cannot be determined and the equine bones are problematical, the dating of the latter grave too is open to question.

As to the pottery not influenced by either Tiahuanaco or Inca, the lack of painted decoration above all renders establishment of a basis for dating even more difficult. This applies in the first place to ollas. The indeterminable types here concerned will be dealt with later.

The Tiahuanaco flaring-sided bowl is characterized by a flat bottom which the flaring side forms an almost right angle. The opening is markedly near the rim. For this reason the vessel gets an almost like appearance. However, the bowl shape used nowadays by the Aymara and Quichua is the semi-spherical bowl (Tschopik 1950 Fig. 10: 8). In addition it has often a profiled out-curving brim. The bottom of the bottom is rounded. On the outer side, however, the transition between the flat bottom surface and the side is marked. The bowl as well as the Mollo semi-spherical shape of the bowls goes rather to the Inca flat type of bowl of similar shape. Although a few bowl types of the same shape occur in the Central Tiahuanaco area (Tschopik 1934 pp. 414, 417), they play a most secondary role. The semi-spherical bowl must therefore be a relatively late type. It thus be dated to the period following that characterized by Tiahuanaco influence.

In Tiahuanaco-influenced graves bowls of a more conical shape have been found (Figs. 19: 3, 55: 2). This type of bowl is a transition between the flaring-sided bowl of Tiahuanaco and the semi-spherical bowl. From the Mollo specimens it would be possible to reconstruct a whole series of intermediate types, from bowls to semi-spherical ones, where the final and youngest form would then be a semi-spherical bowl with a marked brim (Figs.

34: 10, 108: 2). However, since the bowls vary in shape even in the same grave, such a series cannot serve as starting-point for dating of the graves.

I mentioned that on the outer side of the semi-spherical bowl the transition between the flat bottom surface and the side is marked. Thus the rounded bottom is missing, also the so-called bottom torus, a heavy ridge marking the transition on the outer side. However, the side may be vertical to a height of about 5 mm next to the bottom, whereby the bowl often seems to be standing on a disc.

In no instances has a Mollo vessel been provided with an annular (hollowed) foot.

On the semi-spherical bowls boss-shaped projections on the rim or immediately below are common and whenever the boss is placed on the rim, it has most often traverse lines (Figs. 16: 3, 30: 1, 34: 2, 8 and 10, 35: 21, 40: 1, 42: 2, 49: 4 and 7, 56: 6 and 7, 57: 1). If the boss is placed on the side below the rim it may have, instead of parallel lines (Figs. 34: 2, 34: 10, 49: 7), a cross formed by two incised lines (Figs. 36: 42, 56: 7). A boss on one side need not have a counterpart on the other side. As already mentioned (pp. 70—71), the boss may have the shape of a bowl (Fig. 52: 1). This semi-spherical type of bowl may originate from the Mollo Tiahuanaco-influenced flaring-sided bowl with smaller side-bowl.

As to the shape of the semi-spherical bowl, it must be mentioned that it also occurs with a single ear (Figs. 18: 1, 36: 42). Obviously, since it also occurs in square grave houses of stone in the area once centre of the Tiahuanaco culture (Rydén 1947 Fig. 140 pp. 348—349), this type is late. Nowadays vessels of this kind are also used by the Aymara (Tschopik 1950 Fig. 60: d, k).

Semi-spherical bowl types with painted decoration can be divided into two groups. The first comprises bowls where the outer side has a coating strikingly more reddish than the brown of the ware. (Figs. 30: 1, 30: 4, 34: 6 — 7, 34: 8, 34: 9, 36: 35, 56: 6). This reddish, almost violet, coating corresponds to that of the Tiahuanaco-influenced vessels, but there it is as a rule slightly darker tending to brown. Common to these bowls and the Tiahuanaco-influenced vessels is the painted decoration in black-and-white. The decoration consists of triangular lines, crosses formed like swastikas, zig-zag lines crossing each other and forming a series of rhombs or crosses, etc. Among the Mollo specimens there are also types of olla with the same reddish coating and black-and-white decoration (Figs. 30: 3, 34: 4, 35: 24 — 40, 56: 1).

similar shape also occur on vessels of another type, i. e. on single-eared bulbous vessels (Fig. 41: 8). A common feature of all the last-mentioned vessels is also an incised zig-zag line or a fret-like row of incised crosses — two crossing zig-zag lines — around the neck.

In fact, when dating Mollo pottery and graves, Tiahuanaco-influenced and Inca-influenced types indicate the extreme chronological limits either way. As already mentioned, graves older than Tiahuanaco have been impossible of proving. Only two of the graves might be post-Columbian, i. e. Grave 15 at Markopata and Grave 8 at Jutaraya. In this case the post-Columbian date would be indicated in the former grave by the decoration on a vessel found there, and, in the latter, by the presence of animal bones including horse, but as the dog's race cannot be determined and the equine bones are problematical, the dating of the latter grave too is open to question.

As to the pottery not influenced by either Tiahuanaco or Inca, the lack of painted decoration above all renders establishment of a basis for dating even more difficult. This applies in the first place to ollas. The indeterminable types here concerned will be dealt with later.

The Tiahuanaco flaring-sided bowl is characterized by a flat bottom in which the flaring side forms an almost right angle. The opening widens markedly near the rim. For this reason the vessel gets an almost bell-like appearance. However, the bowl shape used nowadays by the Aymara and Quichua is the *semi-spherical bowl* (Tschopik 1950 Fig. 60: h, g). In addition it has often a profiled out-curving brim. The inside of the bottom is rounded. On the outer side, however, the transition between the flat bottom surface and the side is marked. The modern as well as the Mollo semi-spherical shape of the bowls goes back rather to the Inca flat type of bowl of similar shape. Although a few bowl types of the same shape occur in the Central Tiahuanaco area (Bennett 1934 pp. 414, 417), they play a most secondary role. The Mollo semi-spherical bowl must therefore be a relatively late type. It should thus be dated to the period following that characterized by Tiahuanaco influence.

In some Tiahuanaco-influenced graves bowls of a more conical shape have been found (Figs. 19: 3, 55: 2). This type of bowl is a transitional form between the flaring-sided bowl of Tiahuanaco and the later more semi-spherical bowl. From the Mollo specimens it would prove possible to reconstruct a whole series of intermediate types, from flaring-sided bowls to semi-spherical ones, where the final and youngest shape would then be a semi-spherical bowl with a marked brim (Figs.

34: 10, 108: 2). However, since the bowls vary in shape even in the same grave, such a series cannot serve as starting-point for dating of the graves.

I mentioned that on the outer side of the semi-spherical bowl the transition between the flat bottom surface and the side is marked. Thus the rounded bottom is missing, also the so-called bottom torus, a heavy ridge marking the transition on the outer side. However, the side may be vertical to a height of about 5 mm next to the bottom, whereby the bowl often seems to be standing on a disc.

In no instances has a Mollo vessel been provided with an annular (hollowed) foot.

On the semi-spherical bowls boss-shaped projections on the rim or immediately below are common and whenever the boss is placed on the rim, it has most often traverse lines (Figs. 16: 3, 30: 1, 34: 2, 8 and 10, 35: 21, 40: 1, 42: 2, 49: 4 and 7, 56: 6 and 7, 57: 1). If the boss is placed on the side below the rim it may have, instead of parallel lines (Figs. 34: 2, 34: 10, 49: 7), a cross formed by two incised lines (Figs. 36: 42, 56: 7). A boss on one side need not have a counterpart on the other side. As already mentioned (pp. 70—71), the boss may have the shape of a bowl (Fig. 52: 1). This semi-spherical type of bowl may originate from the Mollo Tiahuanaco-influenced flaring-sided bowl with smaller side-bowl.

As to the shape of the semi-spherical bowl, it must be mentioned that it also occurs with a single ear (Figs. 18: 1, 36: 42). Obviously, since it also occurs in square grave houses of stone in the area once centre of the Tiahuanaco culture (Rydén 1947 Fig. 140 pp. 348—349), this type is late. Nowadays vessels of this kind are also used by the Aymara (*Tschopik* 1950 Fig. 60: d, k).

Semi-spherical bowl types with painted decoration can be divided into two groups. The first comprises bowls where the outer side has a coating strikingly more reddish than the brown of the ware. (Figs. 30: 1, 30: 4, 34: 6 + 7, 34: 8, 34: 9, 36: 35, 56: 6). This *reddish, almost violet, coating* corresponds to that of the Tiahuanaco-influenced vessels, but there it is as a rule slightly darker tending to brown. Common to these bowls and the Tiahuanaco-influenced vessels is the painted *decoration in black-and-white*. The decoration consists of triangular lines, crosses formed like swastikas, zig-zag lines crossing each other and forming a series of rhombs or crosses, etc. Among the Mollo specimens there are also types of olla with the same reddish coating and black-and-white decoration (Figs. 30: 3, 34: 4, 35: 24 + 40, 56: 1).

By the use of reddish coating, black-and-white decoration and triangular lines as decorative elements, the decoration on the last-mentioned group is related to the Tiahuanaco-influenced Mollo pottery. However, the surface stratum in which vessels of this type were found in Grave 19 (Figs. 34: 4, 6+7, 8 and 9) speaks for a later dating. On these vessels the rim decoration consisting of semi-circles also occurs (Figs. 30: 4, 34: 9, 56: 6) — another detail relating to the Tiahuanaco-influenced Mollo pottery but also occurring on the group of semi-spherical bowls treated below. The semi-circular rim decoration also appears on the semi-spherical bowls with reddish coating together with a protuberance immediately below the rim, this prompting its interpretation as an extremely conventionalized human face (Fig. 29: 4).

The second group of semi-spherical bowls is characterized above all by its painted decoration. This is done in broad straight or wavy lines, dots and dashes. The decorative colour is a dull red-brown, often tending to black, however. Although unlikely, it might be that black was the intended decorative colour but that it got its brown shade as result of firing failure. Also on these bowls there is a coating, but here of the same colour as the ware. Even when preserved at best it has weathered away in large sections, this permitting the assumption that it formerly existed on vessels now showing no trace of it. On such vessels the coating would have been preserved only under the painted decoration. This latter group is here called "*Mollo Indigenous*".

The ware of the Mollo Indigenous semi-spherical bowls is roughly the same as that of the Tiahuanaco-influenced vessels and the semi-spherical bowls etc. with reddish coating. However, it is noticeable that the ware of the Mollo Indigenous semi-spherical bowls often tends to greyish or black, perhaps on account of the same firing failure, which makes the intended decorative black paint turn red-brown. For the same reason there are dark spots on the surface of these vessels. As a rule, the polish of the vessel's wall is quite expert, especially on the inner side.

As to shape, it should only be mentioned that rim bosses with or without incised lines occur (Figs. 34: 2, 56: 7, 57: 1).

The painted decoration shows little variety. The inner side of the bowl is usually decorated with straight lines radiating from the centre of the bottom (Figs. 30: 6, 34: 15, 35: 23, 42: 7). The space between the radii may occasionally be filled with dots (Figs. 57: 1, 57: 7). Now and again the latter design may be arranged so as to form a cross (Fig. 34: 16). A similar cross-shaped design on the inner side but filled with

wavy lines instead of dots is seen on the bowl in Fig. 57: 5. *Bregante* (1926 Fig. 155) has pointed out a similar trend to arrange the radial design on the inner side of bowls from northwestern Argentina in separate spaces, often seemingly aiming at a cruciform distribution. Cruciform design is also seen on the bowl in Fig. 49: 5, here together with a zig-zag line along the rim and an isolated figure placed in all four fields.

The same dotted design between straight lines occur on an aryballus-shaped vessel with ware and workmanship similar to those of the Mollo Indigenous bowls (Fig. 32: 1) and on a vessel of the same workmanship but shaped like an olla (Fig. 57: 6). The same design also occurs on the outer side of the bowls (Fig. 42: 6).

On vessels with radial linear designs on the inner side there is also a similar design on the outer side (Fig. 35: 23). Two bowls (Figs. 57: 1 and 57: 7) have radial designs with dots in the fields between the radii on the inner side and, on the outer side, radial linear designs — vertical lines — without dots.

The radial design may also appear in wavy lines instead of straight ones. Such a design is seen on the inner side of the bowl in Fig. 34: 1 and on both sides of the bowls in Figs. 34: 2 and 36: 36.

Dotted decoration alone occurs on one or both sides of three bowls in Figs. 34: 18, 36: 48, 49: 4.

A diamond-shaped network of straight lines occurs as decoration on the outer side of the bowl in Fig. 34: 13, while an irregular design of broad wavy lines adorns the inner side of the bowls in Figs. 34: 10 and 49: 7 and both sides of the bowl in Fig. 36: 42. There is a similar irregular linear design, although in narrow dark lines, on the bowls in Figs. 34: 3, 35: 29, and 57: 4. On the bowl in Fig. 29: 1 this linear design evidently goes back to an originally radial design. In the latter there is also a motif which, as already mentioned, might be an imitation of the letter B, which goes to show that the bowl and the grave are post-Columbian. Similar designs of narrow dark lines are seen on bowl sherds from Grave 19 (Fig. 37: A—B).

The deviating decorative colour on the bowl in Fig. 25: 1 may be due to unsuccessful firing. The design on this bowl roughly corresponds to the crude decoration on the bowl in Fig. 48: 18.

As already mentioned, the semi-spherical bowls with reddish coating and decoration in black-and-white have their parallels in vessels of olla type of similar workmanship. The same also applies to the Mollo Indigenous semi-spherical bowls. Such ollas are shown as 34: 17, 35: 22,

35: 33, 56: 9, 104: 1. Broadly speaking, since the decoration consists of vertical straight or wavy lines, it corresponds to that of the bowl-shaped vessels. On the inner side of the rim there is occasionally the same linear design (Fig. 104: 1) or the usual rim decoration of semi-circles (Fig. 35: 33). In the following I shall revert to these ollas in connection with ollas used for everyday practical purposes — as cooking-pots.

There are also other types of vessels of the same workmanship as the Mollo Indigenous bowls. Such an aryballus-shaped vessel comes from Grave 39 (Fig. 64 [Grave 39: 2]). From Grave 17 at Markopata there is a large sherd of another and evidently similar vessel (Fig. 32: 1). Some similar single-earred vessels are also included in this collection (Figs. 35: 26, 49: 6).

The kero with drinking-tube in Fig. 55: 3 is a vessel owing to its workmanship related to the Mollo Indigenous pottery but, owing to its shape, at the same time corresponding to the Tiahuanaco-influenced kero with drinking-tube. As to shape, the olla-like vessel with horizontal ears on the bulbous part from Grave 34 at Markopata (Fig. 57: 6) is a somewhat more isolated specimen. On the latter vessel also a rim decoration of semi-circles occurs on the inner side of the rim. The vessel shown as Fig. 35: 19 + 50 is similar, although of slightly different workmanship, as appears from the description of it.

Among the Mollo sherds the semi-spherical bowl next to the *olla* is the most frequently occurring type. The large water or fermentation jars often decorated with broad black lines, of which type many sherds are found at Tiahuanaco and Wancani (Rydén 1947 Table 1), are almost unrepresented by sherds from Mollo (cf. Fig. 62: e—g). They are here replaced by ollas. This bulbous vessel has an opening diameter nearly equal to the maximum diameter of the vessel. The side curving in immediately below the rim tapers down to the bottom. The vertical ribbon-shaped ears extend from the rim to the bulbous part. As mentioned earlier, this type with reddish coating and painted decoration in black-and-white (p. 143) also occurs in the workmanship of the Mollo Indigenous bowls.

The ware of the ollas apparently used for practical purposes — cooking-pots — is almost greyish. The outer side is darker, almost black. Among the Mollo vessels this type is represented not only by more or less complete specimens but also frequently by large bottom sherds (Figs. 11: 1, 15: 5, 16: 4, 26: 1, 40: 4, 41: 5, 41: 7, 41: 11, 43: 2, 45: 1, 48: 2, 49: 2, 49: 3, 55: 1, 56: 3, 61 (Grave 37: 2), 78: 1, 95: 1, 103: 1, 109: 1—2). Vessels of olla type, but small-sized, also occur (Figs. 30: 2, 30: 9.

31: 3, 34: 12, 35: 20, 35: 27, 36: 41, 39: 1, 42: 1, 69: 2, 73: 1). Since these vessels, contrary to the large ones, show almost no traces of having been affected by fire, the ware, like the outer side, is most often brownish in shade. Presumably these vessels are votive ware put into the grave instead of a large vessel for everyday use as cooking-pot. Sherds, especially of ollas that have seen practical uses, are also numerous from the pit examined, this only natural since the pit excavations include habitation sites.

It is quite possible that the large ollas used as cooking-pots originally had painted decoration which disappeared owing to the action of fire. Fire may also be held responsible for the greyish colour of the ware as well as the blackened surface of the outer side. This is shown by the reddish coating noticed on the inner side of the rim on at least one large olla that have been in practical use — the olla Fig. 45: 1. The decoration on ollas for everyday use is limited to some incised lines traversing the rim at the point of the ear (Figs. 30: 2, 35: 20, 35: 27, 41: 11, 56: 3, 64 [Grave 39: 3]) or to a small boss on the outer side of the ear with two crosswise incised lines (Figs. 32: 2, 43: 1). A large olla with preserved painted decoration and showing no traces of having been used as a cooking-pot is shown in Fig. 104: 1.

The vessel in Fig. 35: 32 occupies a separate position among ollas not only because of the decoration on the ears — an incised network design — but also because of its painted decoration.

Closely related to ollas is a type of large bulbous vessel with narrow neck and horizontal or perhaps vertical ears on the bulbous part where this is widest. This type was probably used as *water or fermentation jar*. The ware is greyish as that of the ollas used as cooking-pots. Often a ridge right around marks the transition between neck and bulbous part. This ridge is decorated with traverse or crosswise incised lines (Fig. 49: 1). This type of vessel is also represented by sherds from the pit excavations (cf. also p. 146).

The *single-eared bulbous vessels* with narrow neck are made of greyish-brown ware and have a polished outer side. Now and again the ware almost corresponds — at least in spots — to the greyish one of ollas that have been in practical use as cooking-pots. A few single-eared vessels have the more reddish coating earlier mentioned (Figs. 34: 14, 35: 26, 36: 37, 49: 6). There is painted decoration in black on the vessel in Fig. 41: 3. However, the painted decoration on this vessel, to a still greater extent the one on the vessel in Fig. 86: 1, somehow place these single-eared vessels in a separate class. As already mentioned, the decora-

tion on the latter vessel, because of the vertical triangular line and the wavy line to the left in the decorative ribbon, is related to the Decadent Central Tiahuanaco decoration. For the rest, however, the decoration differs. The same decoration, as well as the rim boss above the ear, occurs on a similar vessel found by *Nordenskiöld* (1906 Figs. 17—18, 1953 Figs. 17—18) in a cave tomb in Queara Valley. Thus this latter discovery proves that the Tiahuanaco influence reached farther east than shown by the Mollo specimens alone.

Also on the Mollo single-eared bulbous vessels there is a boss on the upper side of the ear with two incised crosswise lines (Figs. 41: 3, 56: 10). The same kind of boss appears in pairs opposite the ear on the side of the vessel in Fig. 41: 8. Another decorative detail from the olla-type vessels — short incised lines across the rim where the ear is placed — is also found on the single-eared vessels (Fig. 34: 11). A detail of decoration common to the single-eared vessels and the water or fermentation fars ones is the horizontal ridge with incised lines or dots marking the transition between neck and bulbous part (Fig. 69 [Grave 2: 3]).

The single-eared bulbous vessel is a type found in square grave houses of stone (*Rydén* 1947 Figs. 142: A—C, F, G, 145, 162) in the area south of Lake Titicaca, formerly centre of the Tiahuanaco culture, this however a type quite unusual among Tiahuanaco pottery (*Bennett* 1934 Fig. 12: o, r *Rydén* 1947 Table 1). A similar type is still in use among the Aymara (*Tschopik* 1950 Fig. 60: a, c).

Another type shaped like the single-eared *bulbous vessel*, but *having no ear*, is shown in Fig. 57: 9. As already mentioned, this vessel has a protuberance with incised line on one side of the bulbous part and traces of probably a counterpart on the other side.

Also with regard to the ware the *asymmetric vessels* — shoe-shaped or ornithomorphous — show their affinity to vessels of greyish ware — ollas — and those of brown ware with more reddish coating and black-and-white decoration as well as to the Mollo Indigenous pottery. The last-mentioned ceramic group is represented by the vessel in Fig. 108: 3. An asymmetric vessel of olla-like ware was found in Grave 19 at Markopata (Fig. 35: 28). Coating of a more red-brown shade than that of the ware is found on the corresponding vessel from Grave 34 (Fig. 57: 8).

The asymmetric type of vessel here dealt with — shoe-shaped or ornithomorphous — is missing in Central Tiahuanaco. However, a cooking-pot of the same style, called "tostero" in Spanish, is nowadays

used by the Aymara on Taquiri Island in Lake Titicaca and in the Desaguadero area, which I had an opportunity of observing in 1939. The neck of this modern asymmetric vessel is almost of the same shape as that of an olla but it has only one ear placed on the not out-curving side turned away from the fire when the vessel is used. Ornithomorphous vessels parallel to that from Jutaraya, Grave 21 (Fig. 108: 3), but earless, are made by the Chiriguano Indians (*Nordenskiöld* 1920 Fig. 41: 3). These Indians also produce a bulbous single-eared type that is fructiform owing to the narrow vertical flutings on the vessel's side (*Nordenskiöld* 1920 Fig. 40: 15). A parallel, as to shape, to this latter type, probably from late Tiahuanaco times, was found in the course of my examinations at Tupuraya in Cochabamba, as yet unpublished. No parallel to the ornithomorphous type from Tiahuanaco times is known to me but I deem it very likely that this type among the Chiriguano, like the ornithomorphous vessel in the Mollo area, has its origin in the focal area of the Tiahuanaco culture. Another parallel feature is the severely stylized face in conjunction with a rim boss on the vessel in Fig. 29: 4, also occurring on the Chané vessels (*Nordenskiöld* 1920 Figs. 38—39). That the asymmetric vessel has a typically Andean distribution I have shown in another context (*Rydén* 1936 p. 162 ff.).

Finally it should be mentioned that Carlos Ponce Sanginés's Mollo collection includes inter alia a few *anthropomorphous vessels*. One of these is of brown ware lacking painted decoration. It represents a woman carrying an aryballus-shaped vessel on her back. The workmanship is crude. Like the communicating twin vessels in Fig. 20: 2, the shape of this vessel has its closest parallels in the coastal area of Peru (*Schmidt* 1929 p. 265). In Central Tiahuanaco this type seems to be non-extant. Hence, if this type derives from the Peruvian coast, it might be attributed to the roving of the Callahuayas and the cultural features transmitted by them.

The foregoing attempt to date the graves examined in the Mollo area and the pottery they contain are based on an analysis of style of the painted decoration on the vessels and of their shape. Other possibilities of dating are the relative positions of the graves sometimes in conjunction with the examinations of the strata on habitation sites. Graves where a succession of burials has taken place may also offer some possibility for dating the pottery found.

Determination of age differences on the basis of position is hardly possible. However, the graves located during excavation of Pit 1 at

Chulpani, and Graves 23 and 24 at Markopata, offer some possibility for dating in this way. Thus, owing to its position, Grave 2 in Pit 1 at Chulpani must be older than Grave 1, this because Grave 2 could hardly have been dug without damaging Grave 1 if the latter was older. Grave 1 contained a semi-spherical bowl. Such a bowl was indeed also found in Grave 2, but this grave contained in addition a typically Tiahuanaco-influenced vessel — a flaring-sided bowl. As to the relation between Grave 23 and Grave 24 at Markopata, Grave 23, owing to its position, must be older than Grave 24. Grave 23 also contained vessels reflecting Tiahuanaco influence (Figs. 41: 1 and 4) whereas Grave 24, younger and nearer surface, contained a vessel with an imitation Inca decoration (Fig. 42: 3). Also in this instance both graves contained bowls of semi-spherical shape.

At the examinations of the pits no sharp divisions between the different ceramic groups identified in the foregoing was to be observed. However, if one compares the objects from the surface layer of Pit 1 at Markopata with those from the bottom stratum, a considerable difference in the pottery can be observed. The objects from the surface stratum thus contain many sherds showing obvious Inca influence, while those from a level below 100 cm show a similarly obvious Tiahuanaco influence. This also applies to the objects from Pit 1 at Chulpani. The objects from Pit 2 at Markopata furnish less information in this regard owing to the slight depth of the culture stratum.

As regards the graves found when the pits were excavated, only one vessel from Grave 2 of Pit 1 at Chulpani (Fig. 69: Grave 2: 1) and the flaring-sided bowl of Grave 41 of Pit 2 at Markopata (Fig. 64: Grave 41: 1) show Tiahuanaco influence. The remaining graves, found when the pits were examined, are probably more recent. They are also more recent than the sherds of the stratum in which the graves were located. Thus Grave 37 in Pit 1 at Markopata, containing a semi-spherical bowl, was located in a layer with Tiahuanaco sherds.

Only in the case of one of the examined graves — the large Grave 19 at Markopata with the rich residue — it is patent that it was used for several successive burials. The vessels in this grave and reflecting Tiahuanaco influence (Figs. 35: 24+47, 36: 39, 44, 52, 54), found in the bottom stratum, thus represent a first burial while the main part of the rest of the vessels probably were put into the grave on the occasion of one or perhaps two later burials.

Of the *metal objects* found only one is an outright ornamental trinket — a gold-leaf pendant with enchased pattern (Fig. 44: 1). Unfortunately,

owing to an oversight this object was not subjected to spectrum analysis, hence its fineness is not known to me.

Of the other metal objects only one is actually a tool — tumi (Fig. 58: 1). The rest of them are topus, i. e. ornamental pins for fastening a woman's dress. Cists having topus are thus undoubtedly women's graves. One of these topus (Fig. 16: 5) is of silver with approximately 10 per cent copper, 1 per cent tin and 1 per cent lead. The rest are of bronze. In the case of bronze objects one notes that the alloy almost invariably comprises about 10 per cent tin, 2 per cent silver and 1 per cent lead. The almost constant silver and lead percentages may be mere natural impurities. In three topus or topu fragments from the same grave (Fig. 26: 4—6), the tin content is less than the average, or 5 per cent. In two of these latter objects the silver percentage is approximately 10. These objects consequently reveal an extra addition of silver. In the topu (1) from Grave 38 (Fig. 64) the lead percentage is approximately 5 per cent and that of silver only 1. In the nine remaining topus or topu fragments the tin percentage is consistently 10, silver 2, and lead 1. A tin percentage of 10 per cent appears also in the bronze pin with two holed flowerlike heads (Fig. 110: 1) as well as in the pin with two solid heads from Grave 27 (Fig. 61: 5).

With regard to shape, one notes that three topus have a flattened-out widening of the pin just under the flat circular head (Figs. 16: 5, 26: 6, 36: 53). One of these is the aforementioned silver topu (Fig. 16: 5). The metal of the two others is bronze with tin contents, as stated above, of approximately 5 per cent in the one instance (Fig. 26: 6) and 10 per cent in the other (Fig. 36: 53). As it thus appears this topu form is not linked to any particular alloy.

Among metal objects not found in cists but during pit excavations there is, from Pit 2 at Markopata, a silver pin (Fig. 65: nn) with a copper content of 10 per cent, tin one per cent and lead one per cent. Strange to say, a topu from the 50/100-cm stratum in Pit 1 at Chulpani (Fig. 70: N) is of almost pure tin. The rest of these pit objects — six topus or topu fragments and the edge portion of an axe — are all of bronze with tin contents of approximately 10 per cent, silver about 2 per cent, lead about 1 per cent. Consequently these pit objects, irrespective of the level where found, show no difference in the matter of alloy.

As apparent from the foregoing summary, the bronze objects are made of a fairly standardized alloy containing approximately 10 per cent tin. Nordenskiöld (1921 p. 105 ff) claimed that bronze was in-

vented by the bearers of the Tiahuanaco culture. The bronze objects here described do not contradict this claim. They, too, are made during a period when the most suitable composition — the 10-per cent tin alloy — had already been achieved. Below (p. 154) I shall revert to the bronze containing less tin than that from the area east of Mollo examined by Nordenskiöld.

Apart from pottery, one *spindle-whorl* and the fragment of another (Figs. 26: 3, 48: 19) are the sole *earthenware implements* discovered. A *game counter* (Fig. 61: k cf. *Rydén* 1936 p. 256 ff.) or chip made of a sherd has already been mentioned. The conical shape of the whorls is identical with that of the whorls on spindles still used by the Aymara.

The collection includes but few *objects of bone or antler*. Of these the spatula-shaped object in Fig. 50: E and the bird-shaped or anthropomorphic object from the 0/100-cm stratum in Pit 1 at Markopata (Fig. 61: l) have no parallels elsewhere. On the other hand, the llama-jaw implement in Grave 28 at Markopata (Fig. 48: 20) and in the bottom stratum of Pit 1 at Markopata (Fig. 62: pp) has its parallel among objects found at Tiahuanaco (*Rydén* 1947 Figs. 5: L—M 16: Q) and at the habitation-burial site Tupuraya near Cochabamba, examined by me but not yet made public, these comprising objects from about Tiahuanaco's Decadent Period. Similar discoveries were also made during examination of the Inca village Palli Marca in the Desaguadero area (*Rydén* 1947 Fig. 82: G). This implement was probably used when making large bulbous vessels, say, ollas.

The antler from Grave 28 at Markopata (Fig. 48: 21) may have been used while weaving in order to keep warp and weft from tangling. For this purpose the Aymara still use an antler or pointed bone implement, the latter frequently shaped as a comb at the blunt end. This latter implement, also one without comb, was found also during examination of the Inca villages Palli Marca and Cchaucha del Kjula Marca in the Desaguadero area (*Rydén* 1947 Table 2). The pointed end of these bone implements as a rule shows marks of wear from the threads. Such marks are missing on the Mollo antler. Deer antler is now also used for medicative purposes by the Aymara (*Paredes* 1920 p. 251, *Rydén* 1947 p. 314).

Stone mortars and pestles (cf. Fig. 38: 1) as well as stone mullers (cf. Fig. 48: 6, also the muller from the south portion of Pit 2 at Markopata sketched in map Fig. 64) prove that then as now maize was grown in the Mollo area. To be sure, in the course of excavating Pit 1 at Markopata a charred corncob was found (p. 81).

Contrary to conclusions warranted by study of exclusively the modern Indian community in Bolivia's highland, the llama in pre-Columbian times must have played a major role in Indian housekeeping. Thus, during the pit excavations on the former habitation sites at Mollo, *llama bones* abounded, the bigger ones usually having been cracked in order to get at the marrow. The same fact could be noted in the course of pit digging in the ruins of Tiahuanaco and Wancani as well as the aforementioned Inca villages Palli Marca and Cchaucha del Kjula Marca in the Desaguadero area (Rydén 1947).

In this connection it should be pointed out that stone hoe blades, quite numerous in Central Tiahuanaco (Rydén 1947 Figs. 47: T,U, 48: a, 52: X, 58: A, B, 85: b,d), seem to be missing in the Mollo area. This might be explained by the fact that the hoe with angular shaft follows potato and quinoa growing. Yet I have seen the hoe with angular shaft being used extensively in the maize fields at Mollo. Also, in a square grave house of stone leaning against the rock wall in Ollachea east of Mollo, Nordenskiöld (1906 Plate 3: 8, 1953, Plate 3: 8) came upon a diminutive angular hoe shaft. In another similar grave in the same valley a stone hoe blade was also found (Nordenskiöld 1906 p. 31 1953 p. 72). Hence the lack of stone hoe blades in the Mollo residue might be purely incidental.

Stone tools for grinding maize are not as common as to justify the contention that maize-growing played a basic role in the pre-Columbian household at Mollo. Similarly, as wood is practically unavailable in the Mollo area, it cannot be assumed that the Indians here, like those east of the Andes, in ancient times used wooden mortars for grinding maize. For such equipment they would then have had to depend on imports from afar, such as the trans-Andean lowlands. In view of the abundance of local rock suitable for millstones, any imports of this kind seem most unlikely. If in pre-Columbian times maize did not play its present role in the domestic Indian economy, this might be explained by the dominant position then held by the llama as prime food staple.

This brings us to the bola weights and their function in everyday life — the likelihood is that they were used for catching llamas as well as for game hunting (vicuña).

The *bola weights* of stone can be divided into three types. One is almost conical (Figs. 49: 10, the specimens in Figs 61: h and 62: oo from the 0/100-cm and 100-cm strata in Pit 1, Markopata), the second more spherical (Fig. 9: X, the specimen in Fig. 61: f from the 0/100-cm

stratum in Pit 1, the specimens in Fig. 65: ii-ll from Pit 2 at Markopata). Occasionally the spherical types has an groove right around in the centre (Figs. 9: W, 68: U). The conical specimens may have served as pestles.

The fragments of *small stone mortars* (Figs. 61: i—j from the 0/100-cm stratum in Pit 1 at Markopata) may derive from mortars used in preparing paints, etc.

As shown by the discoveries already made public, our knowledge relative to the other stone implements used by the ancient Indians has to be based on objects found at or near surface. Hence the observations ventured in this connection perforce will have to be very general.

Judging from specimens found at surface, the *stone-axe* of the Mollo area must have been T-shaped (Fig. 9: U). *Annular stones* (Fig. 9: T) were obviously used as club heads. *Spindle-whorls*, too, were evidently made of stone (Fig. 9: Y). The T-shape of the stone-axes shows close affinity to the metal axes of similar shape used in the highlands of western South America. Also the annular club heads of stone are a preponderantly Andine type.

A comparison of metal and stone objects from Mollo with Nordenskiöld's discoveries in the region farther east (*Nordenskiöld* 1906, 1953) reveals the over-all similarity of the types in both areas. However, in this connection it should be noted that the tin content of the bronze objects found by Nordenskiöld is considerably less than in the Mollo specimens. The explanation might be found in the fact that the Indians in the area examined by Nordenskiöld had easier access to copper than to tin. As to any eventual lead or silver content in the alloy, the analyses published by *Nordenskiöld* (1921 p. 161 ff) furnish no data. Hence there is no possibility of determining in this way whether the copper or tin used for the objects from the Pelechuco area is rendered impure in the same manner as that used for the great majority of Mollo objects and thus derived from the same mines.

* * *

In the foregoing we have repeatedly stressed the similarities of the objects found in Mollo and Nordenskiöld's discoveries in the Pelechuco region to the east. *Nordenskiöld* (1906 p. 37 ff, 1953 p. 85 ff) points out that Quichua is nowadays spoken in this region. However, upon closer study of the oldest literary sources he arrived at the conclusion that at

least the graves other than cave tombs examined by him most probably derive from the Aymara who subsequently were supplanted by the Quichua or adopted the latter's widespread language and cultural features, as for instance their decorative art. Nordenskiöld claims that this also applies to the cave tombs found hereabouts. The Mollo funerary ware has parallels not only in the Central Tiahuanaco pottery and the ware in graves in this region but also in the earthenware still used by the Aymara. This shows plainly that with the exception of a few outright Inca types the Mollo earthenware represents the Aymara. Nordenskiöld's view that both the cave tombs and graves other than cave tombs in the Pelechuco area were used by the Aymara is thus confirmed.

Types in the bottom stratum of pits excavated in Mollo reveal a Tiahuanaco influence more patent than those in the cists. Thus kero sherds like those in Fig. 62: L-M from the Pit 1 bottom level do not differ from the Decadent types of Central Tiahuanaco. However, Tiahuanaco influence is much less obvious in Pelechuco pottery. In Nordenskiöld's collection there is nonetheless included a kero of typical Tiahuanaco shape from a cave tomb in Queara Valley (*Nordenskiöld* 1906 Fig. 19, 1953 Fig. 19). Around the outside it has a painted decoration in the form of a coiled snake — a design common also in Central Tiahuanaco (*Portugal* 1955 Fig. 8, *Rydén* 1947 Fig. 10: A p. 444). The naturalistic style of this snake design is more closely related to the Classic style in Central Tiahuanaco than to the Mollo types here treated. That Tiahuanaco influence otherwise is less marked in Nordenskiöld's specimens is but natural since his examinations covered a region of Tiahuanaco culture more marginal than Mollo. Also, since Mollo extends between Pelechuco and the central region of Tiahuanaco, the assumption is warranted that the Mollo population functioned as intermediaries in the culture diffusion to Pelechuco from Tiahuanaco's focal area. Similarly rattlesnake designs in this latter area, where this reptile is absent, also prove the relation with the area east of the Andes.

However, the graves found by Nordenskiöld in Pelechuco yielding specimens parallel to Mollo are vastly different. The Mollo graves are sub-surface graves while those examined by Nordenskiöld in Pelechuco are outright surface graves. True, *Nordenskiöld* (1906 p. 22, 1953 p. 53) does mention some slab cists in this region, giving no further particulars, but the graves with Mollo parallels were cave tombs or else grave houses with walls of slabs placed horizontally one atop the other or made of four large slabs set on edge with a fifth as roof. Frequently

the rock served as one of the side walls. In construction these grave houses with walls of entire single slabs to some extent correspond to the sub-surface slab cists in Mollo.

In Mollo, grave houses are missing. In the course of reconnaissance northeast of Mollo as far as Chari Valley on the Peruvian border — somewhat closer to the areas earlier examined by Nordenskiöld and Bandelier — I had the opportunity of casually examining some isolated square grave houses located on the Ayaya ridge near Amarete, also at Jaramillo near Charazani and in a couple of fortress-like habitation centres, Mallku Xanalaya and Turi, in Chari Valley near Charazani (p. 161 ff). Close by the grave houses and ruins thereof at Jaramillo, a few sub-surface cists with walls of slabs placed horizontally one atop the other were examined. Thus they greatly resembled some of the Mollo cists and also yielded parallel specimens. Additional graves of this type were also reported near the grave houses on the Ayaya ridge. Grave houses located within habitation centres as in Mallku Xanalaya and Turi also appear in adjacent parts of Peru (*Franco Inojosa* 1937 p. 264 ff). However, never having been systematically examined, very little is known of these Peruvian grave houses or their age. Close by some isolated round or square grave houses in Paucartambo Valley in this same area, *Disselhoff* (1956 pp. 114—117 Pl. 14) found potsherds decorated in a local Inca-influenced style, this proving that the graves in question were used by Incaized Aymara while also squaring with Nordenskiöld's contention relative to the Pelechuco cave tombs and graves other than cave tombs. These grave houses, by the way, are a type largely characteristic of the Aymara on the table-land (*Rydén* 1947 p. 403 ff, *Tschopik* 1946). Since they appear in the Aymara territories both east and west of Mollo, their absence in the Mollo area is probably only incidental.

In her work based chiefly on surface residue, Marion *Tschopik* (1946) has accounted for the pottery found on sundry sites around Lake Titicaca, the characteristics of the different ceramic groups, as well as their distribution and correlation. Two of these groups show great resemblance to the Mollo specimens — Collao Black-on-Red and Allita Amaya Polychrome (*Tschopik* 1946 Figs. 8—9, 20).

The painted horizontal hour-glass design on the Mollo Tiahuanaco-influenced kero in Fig. 35: 25+47 recurs on Collao Black-on-Red jars (*Tschopik* 1946 Fig. 9:a). Also the same field with latticed lines as on the Mollo specimens in Figs. 36: 44 and 36: 54 recurs on Collao Black-

On-Red jars. Again, fields filled with lines are common to the Mollo specimens and the Allita Amaya ware (*Tschopik* 1946 Fig. 20). Finally, on Collao Black-on-Red jars (*Tschopik* 1946 Fig. 9: h) there is the same horizontal ridge with incised dots which, on Mollo vessels of the same shape, occasionally marks the transition between neck and bulbous part. Both on Mollo, Collao Black-on-Red and Allita Amaya ware the decoration is applied on a reddish coating. However, in the case of the Mollo specimens a stronger Tiahuanaco influence is discernible in the Tiahuanaco-inspired design occurring on the type of vessel most characteristic of the Tiahuanaco culture, i. e. the flaring-sided bowl. To be sure, the Allita Amaya specimens were found by *Tschopik* (1946 p. 19) in a type of grave closely related to the stone-lined sub-surface cist tombs, i. e. the surface type by her termed 'slab cist graves' — graves roughly encircled by large upright slabs — a surface type which I have tentatively termed 'stone-fence graves' (*Rydén* 1947 p. 362 ff. p. 435 ff). A kero bottom sherd found by *Nordenskiöld* (1906 Fig. 32, 1953 Fig. 32) in a grave house in Ollachea Valley is decorated exactly like the bowls in *Tschopik*'s Collao Black-on-Red group.

Tschopik (1946 pp. 50—52) claims that Collao Black-on-Red has been found on the surface from Chejnarapi in the ancient Cana territory southwards through Colla, Omasuyu and a portion of the Lupaca country. According to *Tschopik*, *Kidder* (1943 p. 8) says that this ware follows those of Pucara, and at Pucara probably precedes Inca ware. Stylistically, Collao ware at present appears to be unrelated to any known Inca ware. Allita Amaya ware has been found in two "slab cist". Both Collao and Allita Amaya ware is viewed by *Tschopik* as also belonging to the Early Intermediate Period between the end of the Tiahuanaco Decadent Period and the Inca conquest of the territory occupied by the Cana, Collao, Lupaca and Omasuyu subtribes of Aymara-speaking peoples.

The archaeological data from Mollo here treated underline the facts stated above. Thus, apart from a few discoveries of outright Inca character, the Mollo specimens on the whole give the impression of representing an isolated indigent population with a ceramic industry of limited local character. However, as regards types and decorative designs, this pottery was influenced by the shapes and decorative styles of the Central Tiahuanaco culture as well as by the Inca pottery. The twin vessels (Fig. 20: 2) with parallels in the Peruvian coastal area may indicate more distant relations similar to those maintained by the Callahuayas of a later time.

The data obtained admit of no conclusions regarding the development of this culture beyond a juncture coincident with the Classic Period of Central Tiahuanaco. However, most of the Tiahuanaco-influenced ware probably dates back to an era coincident with the Tiahuanaco Decadent Period. Also, Tiahuanaco influence in Mollo and the areas east of the Andes no doubt survived the culture of Tiahuanaco's focal area. Whether outright Inca ware in Mollo should be attributed to importation or to Inca colonists is a moot point. The strongly fortified habitation centres in Chari Valley north of Mollo are today's mute testimony to the constant Inca menace in the north and west (p. 192 ff.).

Thus Tschopik's dating of the Collao Black-on-Red and Allita Amaya ware and the derivation of these ceramic groups square perfectly with the findings relative to the Mollo specimens as well as Nordenskiöld's discoveries in Pelechuco. However, it is seen that the distribution area of these groups as stated by Tschopik is hereby considerably enlarged.

In northwestern Argentina, too, the Inca geometric style and the Tiahuanaco style have undergone changes similar to those in Mollo. Thus, from Barrealito there comes a kero of typical Tiahuanaco shape with a degenerated design resembling that on the Tiahuanaco-influenced Mollo specimens (*Bregante* 1926 Fig. 300, *Debenedetti* 1917 Fig. 75). Degenerated Inca designs identical with the triangle pattern on the vessels in Figs. 20: 1 and 20: 2 recur inter alia on an aryballus and an aryballus-shaped vessel from northwestern Argentina depicted by *Bruch* (1911 Fig. 84) and *Salas* (1945 Fig. 54). From Jujuy, among other places, vessels are known with decorative fields filled, as on the Mollo specimens, with a lattice of lines (*Salas* 1946 Fig. 53). Again, in Jujuy the same design with broad wavy lines as on the single-eared bowl in Fig. 36: 42 is found on bowls of similar shape but without ear (*Salas* 1946 Figs. 6—8).

Also in northern Chile the same changes of the decoration of the Central Tiahuanaco pottery are met with as on the Mollo pottery. Thus some of the vessels depicted by *Latham* (1938 Figs. 9 b, 10, 11, 14, 92, 94, 95) and *Uhle* (1922 Plates XIV: 2—4, XV: 2—4, XV: 4—5, XVIII: 1—4), which the latter considers representing Tiahuanaco and its Epigonal period and also the subsequent era called Atacameña Indígena, conform as to the painted decoration especially to the Mollo pottery.

Parallels to the Mollo Tiahuanaco-influenced ware might also be found when the part of Peru bordering the area treated in this study is examined. From this region are already reported a number of ruins

and grave houses (cf. pp. 156 and 192) resembling those at the fortified Bolivian sites Turi and Mallku Xanalaya previously mentioned.

The grave types typical of Mollo have parallels in Central Tiahuanaco (cf. *Portugal* 1955, *Rydén* 1947, *Tschopik* 1946). Similar grave types are met with also in the South-Bolivian highland (*Ibarra-Grasso* 1955 p. 199), in northwestern Argentina (*Casanova* 1939 p. 249, *Salas* 1945, pp. 92—98) and northern Chile and the adjacent area of Peru (*Latham* 1938 p. 66, *Uhle* 1922 pp. 81—82). Thus the slab cist and its variants may no doubt be considered a type characteristic of the Tiahuanaco culture. It is in any case a specific Central-Andine type with its focal area south of Lake Titicaca.

In his work »The Agrarian Indian Communities of Highland Bolivia», George Mc Cutchen *McBride* (1921 p. 13) says regarding the provinces of Omasuyu and Muñecas:

»Isolation and an extremely hard environment account for much of the backwardness of this region. Routes of travel, in ancient as in modern times, have left these provinces far to one side. The movement of armies and of trade has followed the southwestern shore or has crossed the lake (Titicaca) from northwest to southeast, but seldom has passed along the northeastern side . . . Thus these provinces have lain completely out of the current of important events and constitute one of the most secluded sections of the country».

As far as we know, the Tiahuanaco-influenced ware found in other parts of Bolivia east of the Andes — Cochabamba, Mizque (*Bennett* 1936, *Rydén* 1956) — shows more similarities to the Tiahuanaco ware of the focal area south of Lake Titicaca than to the corresponding Mollo specimens, this probably due to better developed trade. Thus the backwardness of the Mollo area as well as the area examined by Nordenskiöld and Bandelier might have been due to the lack of trade routes from the Central Tiahuanaco region.

RECONNAISSANCE IN PERU BORDER REGION

The Mollo operations practically ended, we undertook a scouting trip northwards in the direction of the area bordering on Peru. Some years earlier my host at Mollo, Don Carlos Ponce Sanginés, had started to map out a huge fortress-like habitation centre known as Mallku Xanalaya in Chari Valley. Our aim was now in the first place to complete this survey and subsequently to inspect another similarly fortified town, Turi, in the same valley. We also planned to gather any further information available relative to some antiquities said to exist near Charazani (Villa General Perez) and at Amarete.

From Mollo ten Indians with as many pack animals carrying our heavy equipment, tents etc., were dispatched in advance to a spot agreed upon in Chari Valley. The intention was that Don Carlos and myself, accompanied by his foreman Donato Molledo M. and two Indian guides, would catch up with this advance party at the agreed spot after a forced ride by shortcuts across the mountains from Ayata. However, bad weather and other circumstances stretched this ride to Chari Valley into 36 hours instead of the 12 we had allowed for.

Stores to replenish the scanty supply we had brought along proved unobtainable in Chari Valley or vicinity, nor was there any grazing to speak of for our mounts and pack animals. Hence we found it necessary to send most of the party back to Mollo almost rightaway. Continued bad weather further reduced our thus already depleted chances to accomplish our object.

Having completed our survey of Mallku Xanalaya and some other investigations in Chari Valley, we felt the need of a few days of rest in the neighbouring community of Charazani. In the course of this stay we examined a number of graves etc. at Jaramillo, as reported below. Similarly, on our way back to Mollo, we also made a brief stopover at Amarete, where the Ayaya site was inspected.

None of the examinations during our excursion to Chari Valley pretends to give an exhaustive picture of the sites inspected. Even so, certain facts bearing on the status of the Mollo collections came to light. When published, Carlos Ponce Sanginés's map will give a more complete picture of Mallku Xanalaya.

MALLKU XANALAYA AND TURI

Going up the valley of Rio Charazani from the community of Charazani west towards its headwaters, one passes after approximately 10 kilometres the small community of Chari— the river is here called Rio Chari — and, after another few kilometres, the also small community of Mallku Xanalaya (cf. sketch map Fig. 113). At Mallku Xanalaya the river, here called Rio Xanalaya, from the south, i. e. on its right, receives an affluent called Rio Morokarka. At Chari, it receives from the same direction another smaller affluent which is called Rio Chorumayo. On its right this latter creek in its turn receives an affluent called Rio Turi. These three affluents are of course only turbulent mountain brooks, their volume obviously varying according to the seasons.

Of the two ruined fortress sites here treated, the one called, like the nearby village, Mallku Xanalaya, nestles high up on the crest of the watershed between the Morokarka and the Chorumayo while the other, Turi, has a similar location between the Chorumayo and the Turi. Thus these ruins almost face each other across the deep valley of Rio Chorumayo. The elevation of Mallku Xanalaya is approximately 4,200 m above sea level, that of Turi slightly less, or 4,000 m. The distance to the Peruvian border is approximately 15 kilometres.

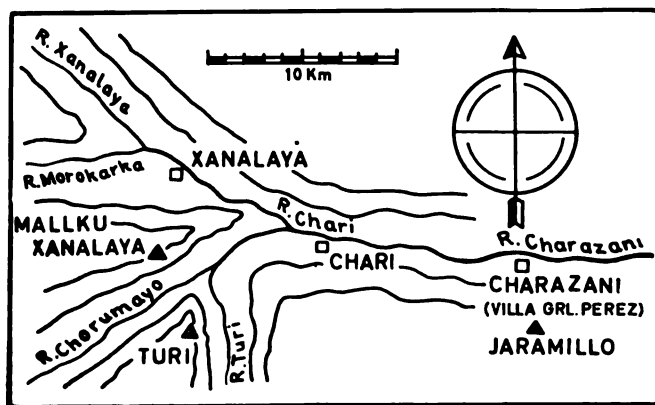


Fig. 113. Sketch map of Charazani area. Triangles mark spots for examinations.

In his notes preserved in the Museum of Natural History, New Bandelier mentions ruins in the Chari region. He "recalls" the village of Chari", but "the hostility of the Indians prevented him digging", according to information personally given me by Dr. MacBain. Bandelier also mentions a ruin called Kota-Kota:

»A mile east of Charazani by airline, but nearly four times that distance by trail in a basin formed by tall and rocky heights, are the ruins . . . Kota-Kota stands at the head of a narrow gorge ending in a chasm. On the other side of this chasm a ridge supporting the village of Curva.»

As seen from this description, Kota-Kota cannot be identical to Turi or Mallku Xanalaya, nor any other site "in the vicinity of" mentioned at the same time, since this latter consisted of only a few buildings.

Bandelier at the same time tells the following story:

»At Charazani also we hear stories about skeletons found in full costume, with staffs in their bony hands and in a sitting posture. Also of the skeleton of a man accompanied by those of five children. Such tales may be true, we cannot prove the contrary, but it is singular that notwithstanding all our efforts we never obtained positive proof. An Indian assured us (and his statements were confirmed by another) that near Amarete a skeleton had been taken out that was extended at full length. It had been exposed to sunlight in order to prevent snowfall. Every attempt to see it was in vain. If it existed, the Indians, when they heard of our search, broke the skeleton to pieces or at least concealed it.»

The Jaramillo site near Charazani, mentioned by Bandelier, was dealt with below.

MALLKU XANALAYA

Pending publication of Don Carlos Ponce Sanginés's map on Mallku Xanalaya, I shall give only a summarized description of this ruin to perhaps the largest in Bolivia.

Mallku Xanalaya's ground plan is almost triangular, its acutest angle pointing northeast towards Charazani Valley. The two sides comprising this angle are the steep slopes into the valleys of the Chorumayo and the Morokarka. Since there are no walls here to protect the settlement, these steep slopes seem indeed to have functioned as adequate defense. However, the third side fronting west is protected by a wall stretching across the crest (Fig. 114). Outside this wall in front of the ruins the ground rises to form the massif on whose outcrop Mallku Xanalaya was reared. As appears from Fig. 114, there are some farm fields high



right, lowest settlement terrace





Fig. 115. Mountain slope with ruin city Mallku Xanalaya on crest and occasional cultivation terraces on the steep slope down to Rio Chorumayo.



Fig. 116. House and grave house, Mallku Xanalaya.



Fig. 117. This picture shows how the outer wall with door — visible farthest at right — has been raised in the direction of the plaza between the wall separating two houses and with no connection between the walls.

up by the settlement on the slopes into the Chorumayo and Morokarka valleys, farther down a narrow strip here and there (Fig. 115). The existence of open fields, i. e. still undeveloped patches, between the settlement area on the crest and the sheer cliffside shows that Mallku Xanalaya, contrary to Turi, hadn't been overpopulated at the time of its evacuation. Outside the western wall there are also some fields. On the other hand, the valley bottoms themselves afford but little space for cultivation. The greatest possibilities in this respect are found in the valley of Rio Charazani.

In the centre of Mallku Xanalaya there is an irregular open plaza about 50 m square. On one side of this main square there is a wall with some niches in it. Most of the buildings are grouped around this main square, but there are also some on the lower terraces away from it. These are also grouped around a central square or lying in a continuous row along the brink of a lengthy open shelf. Within this developed area one notes a number of square or circular(?) grave houses resembling those at Turi later described (Fig. 116).

The buildings are strictly square and had originally ridge roofs (Fig. 114). Neat slabs serve as lintels for the slightly trapeziform doorways (Fig. 116). House-building started from the outer wall running

along the slopes and connecting all buildings. From here other walls were constructed, separating the different buildings or rooms and converging on the central square, the ridge of the roof parallel with the outer wall. Next followed the elevation fronting the square with its trapeziform doorway. The different stages of this construction method are revealed by the wall joints (Fig. 117). The building material consists of undressed rocks stacked one atop the other. The clay that once served as mortar in the joints has now almost disappeared. Compared with Turi, Mallku Xanalaya is much better preserved. Thus it is not unusual here to find houses with almost intact walls.

TURI

Turi's location greatly resembles that of Mallku Xanalaya. Here, too, the advantages offered by the topography have been utilized for purposes of defence. Turi, however, being laid out in a number of different terraces on the crest, and less well preserved, is not such an impressive sight as Mallku Xanalaya, where the city construction forms practically a massive single unit including the lower terraces. Even so, Turi's location on the steep bluff wedged in between Rio Turi and Rio Chorumayo and facing north to overlook their junction is superior from the viewpoint of defence (Figs. 113, 118).

Like Mallku Xanalaya, Turi is protected on two sides by precipitous slopes. On the landside to the south some deep chasms cutting across the crest replace Mallku Xanalaya's western defence wall. On a solitary rise on the settlement side close by the uppermost and deepest of these chasms there is a tower-like building slightly tapering upwards (Figs. 118—121). From here one has a splendid view not only of Turi and its environs but also of Chari or Charazani Valley as well as towards Mallku Xanalaya right across Chorumayo Valley. Evidently this building was a combination watch-tower and signalling station as well as outer defence work for protection of the settled lower terraces against attacks from above. With a probably quite irregular ground plan, the side facing the chasm, this in itself a splendid defence work, (Fig. 119), is rounded. Below the tower the chasm seems to have been planted with a species of small thorny cactus by way of additional obstacles to an attempted ascent. At the base of the tower there is a small recessed opening. The interior filled with rocks and debris, it is difficult to discern the planning here. On the northern slope from the tower



Fig. 118. Mountain rim with Turi seen across Rio Chorumayo from Mallku Xanalaya. Note the stairway-like crest with its settlement terraces and crosswise clefts. At top near right edge the defence tower. Path down the canyon glimpsed as line slanting across picture's centre towards the right.



Fig. 119. Defence tower above Turi with cleft in front. In background slope leading up to Mallku Xanalaya.



Fig. 120. Entrance to one of the rooms in defence tower, Turi.

down to the lower terraces there were apparently some small cubicles about 2 m square built closely in a stepped row (Fig. 121).

From the tower a narrow path runs past these cubicles down towards the settlement. At first blocked by rocks tumbled down from the tower, this path continues to a ridge barely broad enough to pass across. Here the rock is also much weathered. Remains of walls show between the projecting block-like cliffs (Fig. 121). Between another couple of cliffs west of the path about 20 m below the tower there is a dome-like roofless chamber with a low square entrance opening on the path and barely wide enough for a man to crawl through (Fig. 120). The inner wall of this chamber adjoins the rocky precipice on this side. Filled with a 25-cm earth layer, this chamber was examined but no objects found. At least one more such chamber could be noticed at a lower level here. Farther down the path ends on a terrace with a maximum width of about 5 m.

Having somehow managed to cross another few deep chasms, one arrives at that portion of the crest where the settlement proper has been concentrated to three natural terraces, one below the other. Remains of walls on the steep slope from the tower down to the uppermost terrace show that formerly buildings had existed also here, chiefly just above the terrace, this pointing to overcrowding at some time within the settlement proper.

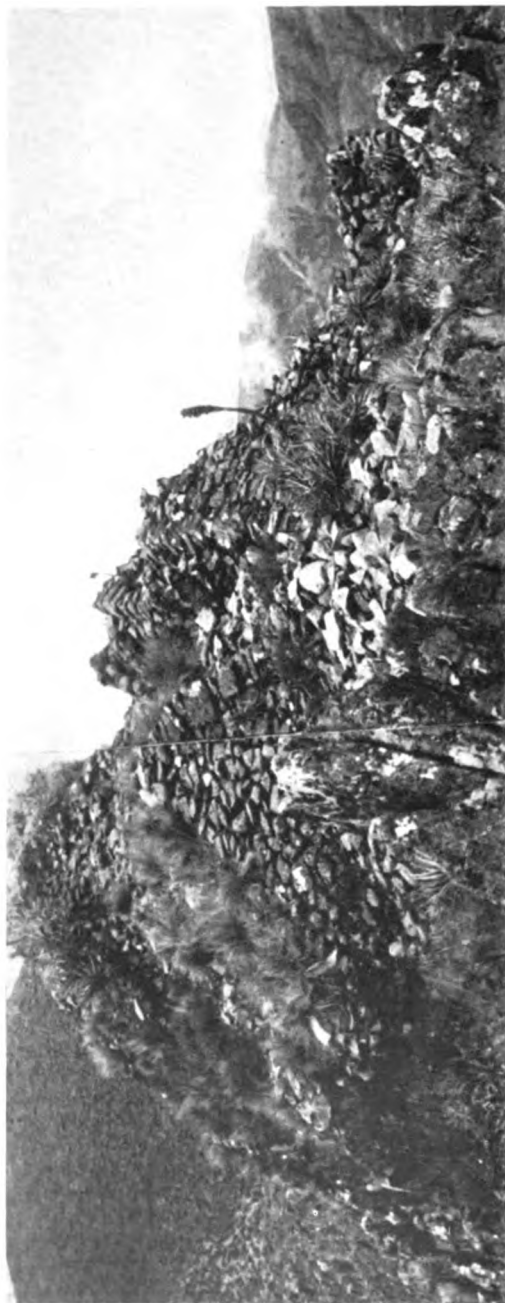


Fig. 121. Watch-tower at Turi seen from the townside (north).

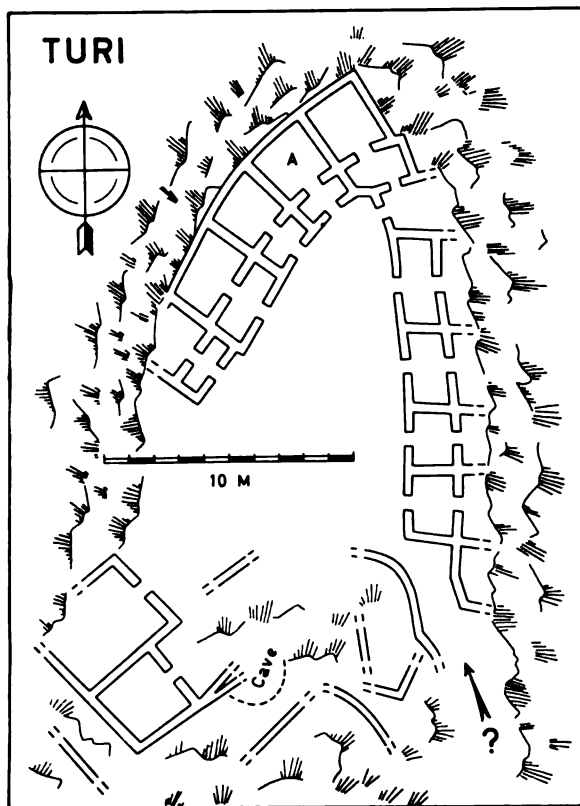


Fig. 122: Sketch map of a settlement terrace at Turi. A marks the house examined, arrow at right the probable entrance mentioned. The main entrance, however, was located on the now collapsed western side.

As indicated, the buildings at Turi are now mostly in ruins, those best preserved located on the uppermost terraces (Figs. 122, 123), but also here walls of a man's height, invariably 50 cm thick, are exceptions. In the joints between the stones remains of clay mortar are seen here and there.

As at Mallku Xanalaya, an identical city plan features all terraces (cf. sketch map Fig. 122), with a triangular central square on each terrace, also triangular, and a row of houses on the outer edge of the eastern and western slopes forming ideal defence works, and also a few buildings on the south side of the triangular open square. Construction methods were also the same, starting with the outer city wall and extending other walls inwards to the central square separating the



Fig. 123. Photo from the southwest of settlement terrace in sketch map Fig. 122.

rooms, the doorway opening on the central square. Each house seems to have had two rooms — a small hall and a larger inner room, the entrance to it in direct line with the front door. Sometimes there are small niches in the inner walls.

At the base of the uppermost terrace there was a cave (cf. Fig. 122). Because of the risk of a seemingly imminent landslide, we refrained from excavating it. West of it two large houses, fairly well preserved, were standing. The wall of one house, resting against the cliffside, was built double, the inner wall with heavy blocks, the outer with only smaller rocks. A gap between the two western two walls may be due to setting of the ground under the outer wall.

The entrance to this terrace was located at the southwestern corner, another having perhaps existed in the southeast, this difficult of making out, however, owing to a mass of tumbled-down rocks (cf. Fig. 122). The path beginning outside the developed area somewhat lower on the west side runs down to the bottom of Chorumayo Valley, in spots along narrow rock ledges constructed on the cliffside. Although slid down here and there and negotiated only at some risk, members of the party could use this path for climbing up from the camp in the valley, thereby also having to negotiate some nasty points here and there. From the northern point of this terrace it is also possible to make one's

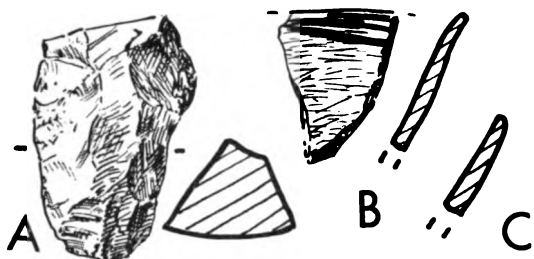


Fig. 124. Residue from settlement terrace, Turi. 1/1.

way down to the terrace below, but whether this communication existed in ancient times is impossible to tell.

The northernmost house but one on the west side of the top terrace (marked A on sketch map Fig. 122) was subjected to a closer examination. The floor was full of rocks tumbled down from the walls. These removed, an earth layer went approximately 10 cm down to the wall foundation. Here seven sherds and a fragment of a stone muller were found. These sherds are from the bulbous part of ollas and have obviously been exposed to fire on the outside. One sherd has a ribbon-shaped ear protruding from the rim. Another is a rim sherd of a thin-walled semi-spherical bowl with the same profile as Sherd B in Fig. 124. In the doorway between the inner and the outer rooms a stone sill was revealed.

Surface residue on the upper terrace was also scanty. A total of about 25 sherds were collected, most of them representing the bulbous part of ollas. Several of these sherds obviously represent modern manufacture. Two sherds of semi-spherical bowls of greyish-brown ware (Fig. 124: B—C), one with some decorative lines in darker colour on the inside, were located. A rim sherd, subsequently lost, had a few traverse incised lines, another had a protruding ribbon-shaped ear. The first-mentioned may be from that part of an olla rim which is opposite one of the ears (cf. Fig. 133: 2). Further the flake-like object of greyish-brown rock shown as Fig. 124: A, also, right in the square, a stone mortar fragment, its upper side flat and the depression oblong.

The cave mentioned may have been used for burials. However, no surface residue such as skeletal remains and the like indicating such use could be observed.

Ruins of square grave houses could be seen close by the upper terrace and on the southern slope and on rock ledges level with the terrace along the path leading down into Chorumayo Valley. Another structure



Fig. 125. Grave house, Turi, (cf. Fig. 126).

could be seen to the east on the opposite side of Turi Valley. These structures were as a rule much delapidated, but in a few instances skeletal remains were noted in the debris of tumbled walls and earth. However, both in Turi and Mallku Xanalaya, grave houses are few compared with the number of habitations, this indicating that regular burial sites may have existed elsewhere or that both Turi and Mallku Xanalaya were inhabited only as places of refuge in times of war, which seems less probable.

One of the best preserved of these structures was located on a small separate terrace, slightly larger than the structure itself and made of irregular slabs laid atop one another about 50 m southwest of the top terrace and level therewith, on the slope into Chorumayo Valley (Figs. 125, 126). This structure, too, was subjected to a closer examination. Almost rectangular in shape, its floor level with the terrace, the entrance to it in the shorter eastern end wall consisted of a square opening approximately 40 by 50 cm with a 30 cm high sill of stone. Five large slabs formed a ceiling. The northwestern corner had been smashed in, probably by looters, this having dislodged the westernmost ceiling slab from its original position. The eastern end wall was intact to about 50 cm above the entrance, the same height as the longer southern side wall. The northern side wall, however, had collapsed to about 70 cm above the terrace foundation. The south wall was leaning

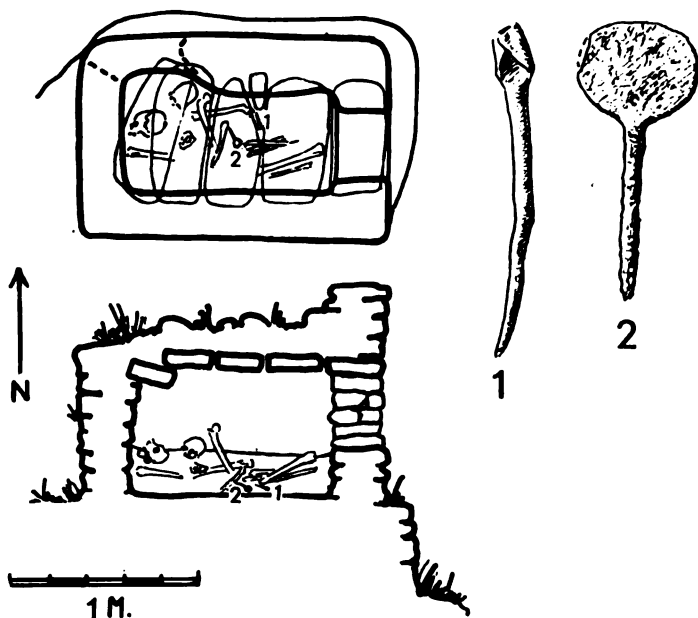


Fig. 126. Grave house examined at Turi. 1/1.

slightly inwards, probably due to rains having washed away the interior filling after the north wall had collapsed. The nature and construction of the roof once covering the structure are difficult of perceiving.

Rains had deposited soil, perhaps from the roof, on the floor to the level of the door sill. Before examination some skeletal remains were visible at surface, notably two crania in the west part of the chamber. A femur protruding in the centre indicates that the dead had been placed in a sitting posture, their knees drawn up to the chin, this fact also confirmed by other extremal bones subsequently found embedded in the earth layer.

The size of the opening, however, would seem to preclude the entering of a bundled-up body in a crouching position. Probably the roof was left unfinished until the first body had been deposited and subsequently removed for new burials. The square opening only served for insertion of food and other offerings to the dead. The skeletal remains here are of at least two adults, apparently females.

At bottom level two topus were found, one with blade missing (Fig. 126: 1—2). The points of the preserved flat head fragment have

been bent together. Spectrum analysis showed that these two pins are of bronze containing more than 10 per cent tin. Moreover, they also have a few per cent of silver, while no traces of lead or zinc could be discerned. Regarding these objects as well as those shown in Fig. 133: 3—5, Dr. Arne Strömberg, of the National Historical Museum, Stockholm, states that this silver might be the remains of plating, but as it appears consistently in every object, it might be regarded as one of the components of the alloy, having perhaps got into it accidentally together with the copper.

JARAMILLO

Immediately south and southwest of Charazani there looms an imposing massif with a lower outcrop to the east, the top of which is called Jaramillo. The air distance from Charazani is approximately 2 km, but the trail winding up the steep slope and passing west of the grave houses marked on the map in Fig. 127 is considerably longer.

Apparently Jaramillo is identical with one of the sites once studied by Bandelier. According to Dr. MacBain, his diary notes contain the following entry obviously referring to Jaramillo:

•Puka Urcu — also called Aramillo.

•Above Charassani, 1,450 feet higher and an hour and a half of steady ascent, the ruins of Puka Urcu, also called Aramillo, are picturesquely situated. They do not seem extensive, still the top is covered with terraces. I could not obtain anybody to help me carrying the tape line, while my wife and our two boys would excavate. So we limited

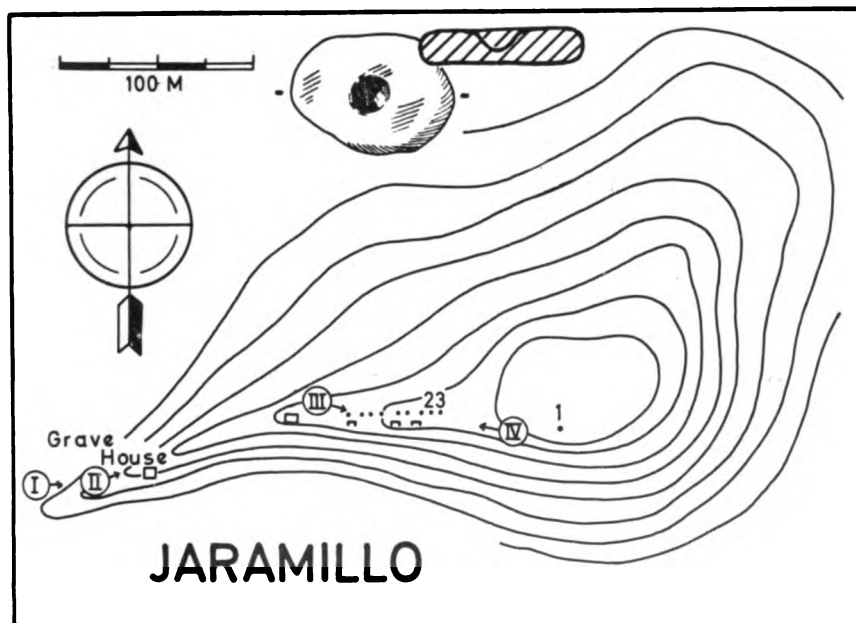


Fig. 127. Sketch map of Jaramillo. Cut-in, stone mortar found. Circles with Roman figure and arrow mark points from where Figs. 128—131 respectively have been taken.

ourselves to photographing the site and the splendid view of the snowy mountains of Akkamani, seen from there to greatest advantage

»The houses at Aramillo are small and of stone, disposed, as far as preliminary examination permitted us to see, around partly closed courts; that is, the buildings occupy two or three sides of an irregular quadrangle. The masonry is better than in the southern Cordillera or near Huata. Traces of burial cysts appeared also. The place is now under cultivation, and while both the northern and southern declivities are exceedingly steep, the west runs out in a narrow ridge and the east falls in tall steps protected by masonry. For defence and observation (and subsistence as far as an altitude of 11,500 feet can afford it) the place was admirably selected. Literally speaking, nothing can stir below, and escape observation, from the ruins. We found a triphyned skull and some sherds, nothing more, as no help could be obtained for systematic excavations.»

In her letter Dr. MacBain adds:

»Actually, if the catalogue is right, there are three pots as well as 30 sherds, 3 skulls and 1 mummy, from this site.»

Bandelier's description tallies well with the facts to be reported here. One is struck, however, by the havoc wrought to this ancient settlement since his visit. Buildings mentioned by him are now almost totally demolished as result of cultivation on the top.

The main direction of Jaramillo is east-west, its greatest elevation in the extreme east, now all flat field, its western slope gentle but broken by a couple of terraces, the fields narrowing to small patches until the bedrock comes into view (Figs. 128—131). The southward slope,



Fig. 128. Jaramillo with grave house seen from the west. Camera position marked I on map Fig. 127.



Fig. 129. Grave house on western slope of Jaramillo seen from the west. Camera position marked II on map Fig. 127.



Fig. 130. Almost obliterated foundations of grave houses with, in front, looted graves on crest of Jaramillo. Camera position marked III on map Fig. 127.



Fig. 131. South slope and crest of Jaramillo seen from the east. Camera position marked IV on map Fig. 127.

steeper than the northern, starts off with a 2-m declivity perhaps marking a razed terrace wall (Fig. 131). On the flatter land below Jaramillo itself there are also fields, these also terraced by way of protection against erosion.

The shortness of our stay here — only two days — plus bad weather precluded exhaustive examinations, but the following could be noted:

Farthest west some distance up the western outcrop there is a grave house 1.20 m square, quite well preserved and facing west, a small terrace of some square metres in front of it (Figs. 128, 129). Not isolated, the northern and eastern walls are embedded in the earth. The exposed metre-high south wall, bulging out slightly, is highest. A few large slabs covered with earth make up the roof. The opening, 55 cm at the base, is slightly trapeziform. The chamber itself, probably rifled long ago, is 100 by 85 cm.

Farther up there is a low stone foundation 2 m square. In a row along the western slope there are at least four more, 1.5 m square (Fig. 130). They might be remains of grave houses or of the foundations for the buildings mentioned by Bandelier. Their exposed location at the edge of the slope may have hastened their destruction.

Some distance in front of these remnants we noted a number of cists all covered with earth, seven of them in a straight line east-west a few metres apart, most of them apparently looted — no doubt the graves

meant by Bandelier when he speaks of "traces of burial cysts". Their orderly placing prompted some digging along an eastward extension of the line, this yielding the fully intact Graves 2 and 3.

On the flat top a few sherds were found, mostly representing ollas and on the whole suggesting a fairly modern origin, two of them shown in Fig. 132: 2—3. The ware is brown, the surface of the specimen 132: 2, a bowl sherd, polished and probably with an earlier coating of the shade of the ware, the right of the part shown painted brownish-violet. The opening diameter of the semispherical bowl represented by Sherd 132: 3, probably the oldest, is 15 cm. Its inner side is decorated in black. Here on the top we also found the stone mortar cut in on the map in Fig. 127, its maximum length 40 cm. This object points to a more or less permanent settlement. Of course, cultivation plus erosion had destroyed most graves once located hereabouts.

Grave 1 (Figs. 127, 132)

This grave was located on the flat eastern top approximately 15 m from the edge of the southward slope, its position indicated by the figure I on the map in Fig. 127.

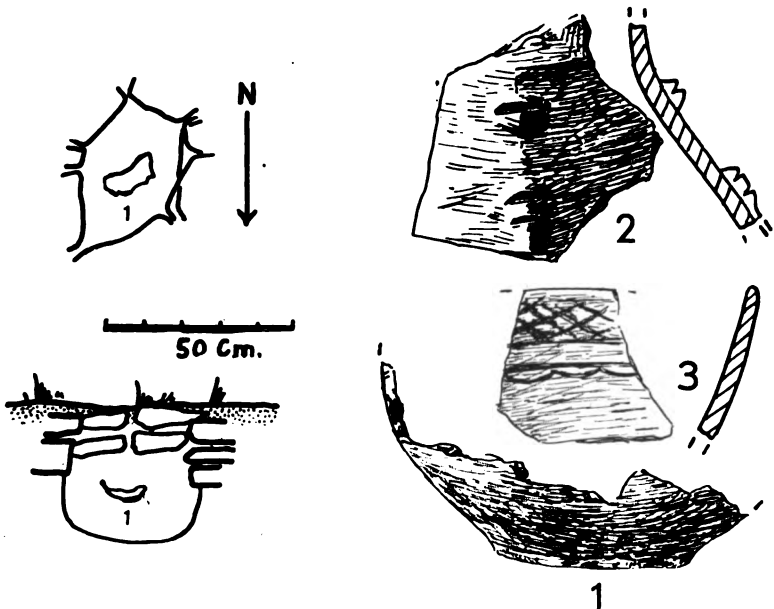


Fig. 132. Grave 1, Jaramillo, with sherd from (1) it as well as surface residue (2 and 3). 1/2.

Two or three layers of flat irregular slabs on top of one another, the topmost at surface, formed a slightly irregular circle (Fig. 132), the size of the grave indicating a child burial.

Earth of a slightly darker tint than the surrounding soil completely filled the grave to 25 cm below the bottom end of the wall slabs, hence the floor must have been lower than the walls. At a depth of 20 cm we found the bottom part of an olla (Fig. 132: 1), the ware light-brown, the wall remarkably thin, or only 3—4 mm, the outer side polished, probably from a vessel not belonging to the original funerary requisites.

Grave 2 (Figs. 127, 133)

Located immediately east of the last one in the east-west row of looted graves, its position indicated by the figure 2 on the map in Fig. 127, its western end partly covered by a rock-studded strip marking the boundary between two fields, this perhaps the reason for its escape from looting.

This dome-shaped and slightly oblong chamber of rough slabs, outlined on the map in Fig. 133, is a curious construction. The top layer of the wall consisted of two long narrow slabs with two shorter at right angles between them (cf. sketch in Fig. 133), this resulting in a regular square opening in the top, this in turn closed by two long roof slabs placed north-south and covered by a 10-cm layer of earth. The same roof construction appeared in the subsequently examined Grave 3.

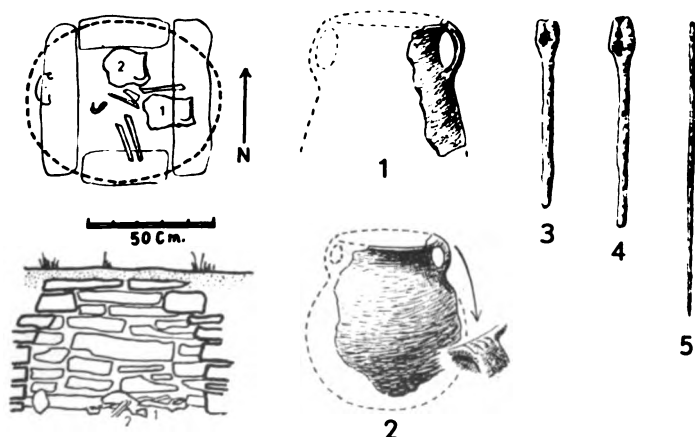


Fig. 133. Grave 2 with objects from it (1 and 2) and objects from Grave 3 (3—5), Jaramillo.
1 and 2 are 1/5, 3—4 are 1/2.

The chamber was filled with fine earth to a depth of 10 cm. Farthest west in this filling a cranium and the condyles of extremital bones jutted up together with what at first seemed to be two complete vessels of olla type (1—2). These lay on their sides, openings towards the east, and, like the extremital bones, in the eastern part of the chamber.

During the excavation the seemingly complete vessel turned out to be the vertical halves of two different ollas. The ware light greyish-brown, of fairly good quality, the outer side slightly darker than the inner. The rim of Vessel 2 has four traverse lines incised above the preserved ear. Under these halves there was an ample quantity of charcoal, indicating that they had been placed over embers to keep these smouldering as long as possible for the benefit of the deceased on his journey into the Great Unknown. Unfortunately, these embers, carefully preserved in the ollas and splendid material for C-14 dating, were ruined by the Bolivian authorities when unpacking the parcel for listing of the collection.

The skeletal remains were heavily mouldered. A femur fragment stuck up between the two olla halves somewhat to the south. The aforementioned cranium, visible before excavation, was lying on its side in the western part, face towards the north, the lower jaw in the centre, embedded with the other skeletal remains in the filling, the wisdom teeth erupting, the other teeth showing but slight wear. Judging from the sturdy muscle reliefs, a male adolescent here found his last resting place.

Grave 3 (Figs. 127, 133: 3—5)

This grave was located 3 m east of Grave 2 and east of the boulder strip separating two fields, its position indicated by the figure 3 on the map in Fig. 127, the field here about 5 m above the field west of the boundary strip.

Construction here was identical with Grave 2, the wall sides more even, however. Heavy rain prevented its sketching in on the map. The filling almost reached the roof slabs. A compact mass of skeletal remains, at least three individuals, marked the floor. One cranium, probably of a female, was heavily deformed by earth pressure, or it may have been deformed artificially since the forehead appeared to be depressed. The position of some extremital bones in the northeastern part indicated that at least one individual had been buried in a sitting posture, knees drawn up to the chin, and facing northeast. At bottom level there were two topus (Fig. 133: 3—4), the round flat heads missing, and one needle

(Fig. 133: 5). The preserved parts of the heads of both have been bent together. Simultaneously two sherds of the bulbous part of an olla were found. The ware is light-brown, amazingly thin, or about 3—4 mm, the outer side polished. Spectrum analysis of the two topus and the needle showed a bronze alloy identical with the two topus in the grave house at Turi (Fig. 126: 1—2), i. e. more than 10 per cent tin, a few per cent of silver, no lead or zinc traceable. As in the case of the Turi objects, the presence of silver might be due to accidental admixture in the copper (cf. p. 174).

AYAYA

A 5-km ride along the road running from Amarete in a southern direction on the slope to a valley east of it brings you to the gorge of Morochaka Creek (Fig. 134). On the opposite side there rises in cultivated terrace steps, at first only narrow shelves but progressively broadening upwards, a huge massif extending southwards. A sharp mountain ridge called Ayaya (Figs. 134, 135) with its pointed peak and precipitous cliffsides east and west heavily weathered (Figs. 135—138) marks the easternmost limit of cultivation in this area. A deep chasm separates Ayaya ridge, lowering to the north, from the mountain massif. A spot at the highest point close by this chasm was the location of Grave House 8, the southernmost of all at Ayaya (Figs. 135—137).

Opposite Ayaya, on the western mountain slope, within an area of a few hundred square metres, there are numerous remains of what appears to be foundations and walls of square buildings, sometimes of a man's height, perhaps pointing to an earlier settlement — or these stone heaps might partly be the rock studdings of one-time terrace



Fig. 134. Ayaya, marked by arrow, as seen from southwest (road to Amarete-Ayaya) before passing the Morochaka valley.



Fig. 115. View of Ayra with grave houses seen from the north.



Fig. 116. View of Ayra with grave houses seen from the north.



Fig. 137. Grave houses on Ayaya, Grave House 8 nearest. Picture taken from the north



Fig. 138. Grave Houses 1-2 on west side of Ayaya



Fig. 135. Crest of Ayaya with grave houses seen from the north.



Fig. 136. Grave House 8 seen from depression north of Ayaya.



Fig. 137. Grave houses on Ayaya, Grave House 8 nearest. Picture taken from the north



Fig. 138. Grave Houses 1-2 on west side of Ayaya.



Fig. 139. Severely damaged grave house, Ayayá.

walls. Here are also remains of seemingly round or square structures reminding of the grave houses at Turi and Mallku Xanalaya.

Some sherds were picked up on this habitation site (Fig. 141: A—E). All are of light greyish-brown ware of good quality and with well-polished surface. Sherd A, the rim fragment of a vessel with a 20/25-cm opening diameter, has painted decoration in black on the outer side. Sherd E is from a vessel, probably of olla type, with the same opening diameter. The broad ribbon-shaped ear has incised crosswise lines on the rim and circular indentations on the ear. Rim Sherds B—D are apparently from semi-spherical bowls with a 15/20-cm opening diameter. As a whole these sherds suggest rather late manufacture.

In a metre-high terrace wall west of this site there is a structure shaped like a grave house (Fig. 142) with an opening 50 cm wide, 75 cm high, and a 40-cm door sill. On one side close by the opening the joints between the stones form a straight vertical line, this perhaps indicating that it was originally a partly isolated grave house now surrounded by higher fields south and east, the southern field now at roof level. Strangely enough, this vertical line reaches neither the foundation nor the top of the wall. The structure rests on a weathered bedrock ledge approximately 75 cm higher than the northern field. The roof construction is remarkable. As appears from the sketch in Fig. 143, three slabs were first placed across the chamber, not covering it entirely

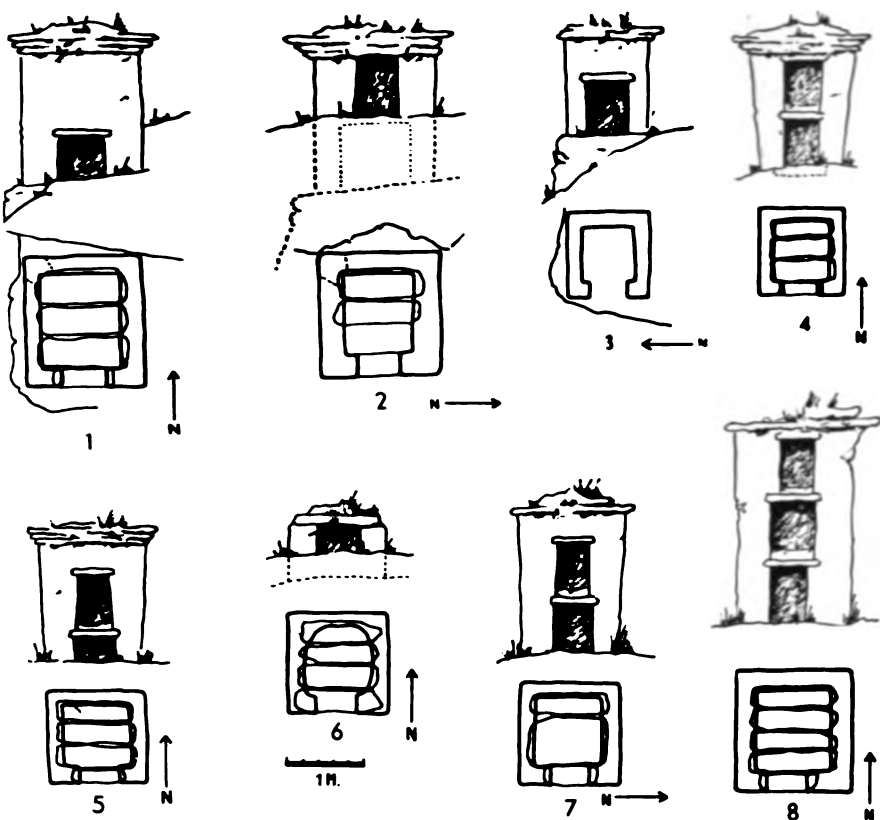


Fig. 140. Sketches of Grave Houses 1-8, Ayaya.



Fig. 141. Residue from habitation site, Ayaya 1/2.

but leaving two 10-cm rifts, these in turn covered by two other slabs. The ground-plan, marked by a broken line in Fig. 143, is almost rectangular. The wall stones are slightly tiered, giving the structure a dome-like shape. Plainly looted clean, and bottom layer missing, no excavation was attempted.



Fig. 142. Grave house, Ayaya.

On the slope just below there is another structure consisting of an almost semi-circular wall of irregular slabs placed horizontally one atop the other and forming a crude roof, the lot looking like a large niche opening north and with a metre-wide flat strip in front (Figs. 144—146). In this are three smaller niches, one in the east and one in the west at ground level, another about midway up the wall. A large slab juts out in the west under the projecting upper roof slabs, the wall slabs under it much cracked and blackened by fire. A metre-square excavation close by the south wall, where the earth layer was deepest, yielded no results.

Perhaps this structure is modern. When I left Amarete I observed an almost identical specimen near two of those small beehive-shaped and often movable huts of branches, stalks and brushwood, used by herdsmen or by labourers to camp in at night when out working in the fields. The niche seen by us on the slope would then have been used as fire-place.

On the crest of Ayaya not far from the first-mentioned Grave House 8 (Fig. 140: 8) there are five others in a row (Fig. 140: 3—7), on its western slope two (Fig. 140: 1—2), that shown as 140: 6 probably the lower part of an originally higher structure. Incidentally, the illustrations of the grave houses in Fig. 140 are very schematical, especially Grave Houses 3—8, all of these isolated and worst exposed to

the weather and therefore, unlike the two farther down the western slope (Fig. 140: 1—2), lacking clay stucco. However, the actual appearance of the walls of Grave Houses 3—8 is seen in Fig. 137. Farthest down north on the ridge Grave House 3 occupied a terrace construction, and south of it and higher Grave House 4 was located. Between them, 1.5 m from Grave House 4, there are the remains of a grave house here shown in photograph only (Fig. 139), too damaged to merit exact measuring. Somewhat higher up, 70 cm from Grave House 5, there is a circle of stones on the surface about 90 cm in diameter, the inside depressed, perhaps the foundation of a grave house. Grave Houses 5 and 6 are one metre apart, four metres separating 6 and 7, while the distance between Grave Houses 7 and 8 — the latter southernmost and topmost — is 20 m. The existence of additional grave houses in the vicinity is quite likely. Somewhere east of Ayaya there are also said to be some slab cists, but owing to a misunderstanding I failed to visit the spot.

As pointed out, all grave houses except the two down the west side of the ridge (Fig. 138) are much damaged by the weather and also looted. Therefore, in addition to the sketches in Fig. 140, I shall only briefly touch on their construction.

All are built of irregular slabs laid horizontally with the aid of some sort of clayey mortar, the outside also seemingly having been stuccoed therewith, this cover preserved only on the two better sheltered specimens on the west side of the ridge (Figs. 138, 140: 1—2). On one of

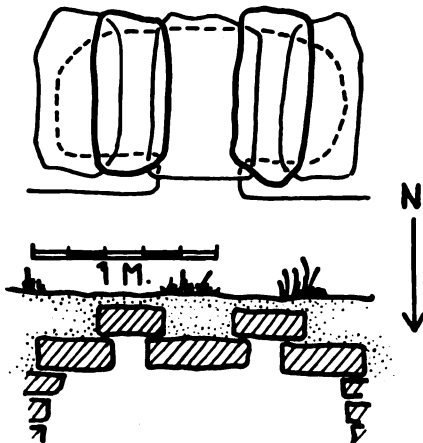


Fig. 143. Roof construction on grave house Fig. 142.

them even some of the white wall coating still remains especially under the projecting roof. Both are built on natural ledges in the cliffside, these, however, somewhat enlarged by terrace constructions. A similar construction occurs at least in one instance atop the ridge (Fig. 140: 3). Here, however, small natural ledges minus artificial extensions have been made use of in the first place, a few of the grave houses then taking up all space available. Two of them, as for instance the one shown in Fig. 139, are thus located right on the edge of the eastern precipice.

The outer roof consists of several layers of slabs evidently once having had an earth layer by way of top covering. As a rule each layer projects somewhat beyond the underlying, thus forming a cornice, the aim probably being to protect the wall's clay stucco, the entire structure for this reason also tapering towards the base, as particularly apparent in the case of Grave House 4 (Fig. 140: 4).

All structures are square, built in one, two or three storeys, each with a slightly trapeziform opening on the same side, with a slab as lintel sometimes forming the sill for the opening in the storey above and at least in one instance nearly as long as the structure is wide (Fig. 140: 6). Grave House 2 (Fig. 140: 2), with bottom-storey entrance missing, is an exception. Here, disregarding a hole knocked out no doubt by looters in the southwestern bottom corner, access was gained through a hole in the floor of the upper storey just inside the opening. Except for the much demolished Grave House 6 (Fig. 140: 6), all chambers are square.

As appears from the sketches, the structures with their openings are usually facing south. Grave Houses 2 and 7, however, are facing east, Grave House 3 west, this probably due to ground conditions which otherwise as a rule favour access from north or south, whereby south has been preferred. Ground conditions on the spot may also account for the missing entrance to the bottom storey of Grave House 2.

As sketched in Fig. 140, floors consist of slabs placed parallel with the front wall with its opening, as well as the top ceilings, the top ceiling of Grave House 4 the sole exception, and flooring of heavy clayey earth, the bare slabs forming the ceiling of the storey below. Some of this earth may derive from the roof layer, but the clay was evidently put there to close the rifts between the floor-ceiling slabs. The bottom floor of Grave House 4 is slightly below ground level.

The entrances to Grave House 8, sole three-storeyed structure, are not plumb, this perhaps indicating that the upper storeys were added





Fig. 144. "House ruin", Ayaya. Camera position marked I within circle with arrow on map Fig. 146.

successively. Regrettably enough, the absence of all movable residue owing to looting precludes determination of the different construction stages. A few sherds found now and again in or outside the chambers derive, as far as could be made out, from modern ollas or semi-spherical bowls produced in nearby Amarete. Holes knocked from the outside in Grave Houses 1 and 2 are probably due to looters finding the original entrance walled up and difficult of locating, although the question then remains why it was later opened.

The objects of greyish fine-grained rock shown in Fig. 147 were found by Indians at Amarete. Object B is a mortar, A and C axes of almost T-shape. Strangely enough, the blade doesn't form a right angle to the shaft — a fact frequently observed in the case of stone axes of this type.

Bandelier's note on a skeleton taken out of a grave near Amarete (Ayaya?) is mentioned on p. 162.

MALLKU XANALAYA — TURI — JARAMILLO — AYAYA — MOLLO: COMPARISON

Any traditions of value for determination of the age of Turi and Mallku Xanalaya do not seem to have survived among the Indians of the neighbouring valleys. For that matter, they are loath to come near the ruins and actually shun them. When they visit them occasionally, it is usually for the purpose of sacrificing to the "chullpas" by way of insurance against crop failure. At Mallku Xanalaya, llama bones scattered around some slab serving as table in a square, or in crevices in the rock or nearby stone heaps, are no doubt the remains of such sacrificial feasts.

Even if the scantiness of movable residue would point to Turi and Mallku Xanalaya having been inhabited only intermittingly, as in times of unrest, this is gainsaid by the existence of grave structures within these two sites and their immediate vicinity, also by the fact that most buildings have two rooms, one of which probably a store-room, plus occasional discoveries of maize-grinding appliances such as stone mortars and mullers. Add to this the evidence of over-population at some time or other within the settlements proper as shown by expansion of the inhabited area at Turi outside the original walls.

With no direct access to water, and descent or ascent to and from the river out of question in an emergency, one would think that a siege of only a few days would have spelt disaster. It must be borne in mind, however, that eventual aggressors would have had to tote along their own supplies, no foraging possibilities being offered by sown or unsown fields in a vast surrounding region, while at harvest time the would-be conquerors just as much as their intended victims would have had their hands full in their own home grounds. Hence a siege of needed duration by the forces required would have been quite an undertaking at any time.

The Inca system of communication, so admired by the Spanish, with regular supply depots at strategic points all along their invasion routes, enabled them to invest an enemy stronghold for almost any length of time. Also, as seen at Machu Picchu for instance, they



Fig. 145. "House ruin", Ayaya. Camera position marked II within circle with arrow on map Fig. 146.

clearly realized the essential role played by water in a fortified place. Their astounding success as conquerors can no doubt in a large measure be attributed to solicitude as regards adequate maintenance of their armies.

The Jaramillo graves are parallel to those in Mollo since they have walls of slabs stacked one atop the other, the only difference being

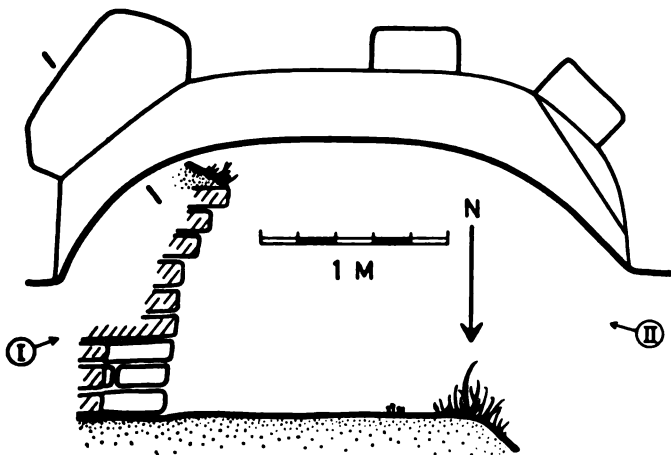


Fig. 146. Sketch map of «house ruin», Ayaya. Circles with arrow and Roman figure mark camera positions for Figs. 144–145.

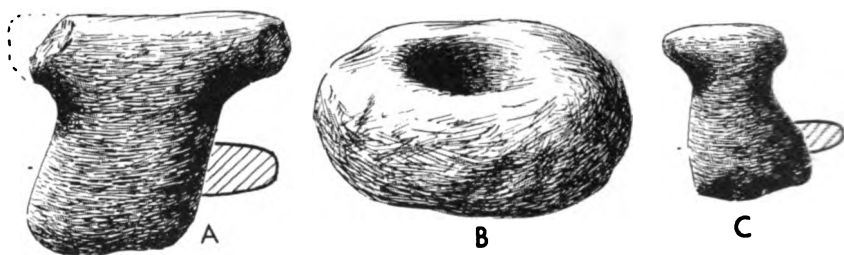


Fig. 147. Two stone-axes and one stone mortar found by Indians near Amarete. 1 2.

that the two Jaramillo graves have an almost oblong ground plan and better built walls. Any differences in roof construction could not be determined since none of the Mollo graves examined by me had an intact roof. Hence the Jaramillo graves may represent parallels of Mollo roof constructions. Also, the two large olla sherds in Grave 2 at Jaramillo are parallel to Mollo olla sherds, similarly the bronze objects in Grave 3 at Jaramillo.

According to Dr. MacBain, there are three pottery specimens in Bandelier's New York collection which are stated to derive from "Aramillo (Puka Urcu) near Charazani", i. e. Jaramillo. These specimens are a kero with an upright trunnion-like projection and another resembling an olla but with one ear combined with a drinking-tube. Both these specimens have Tiahuanaco-influenced decoration in black-and-white. The third is a single-eared bulbous vessel of orange-coloured ware with a horizontal ridge with incised dots between neck and bulbous part. The shape of this specimen is consequently parallel to Vessel 3 from Grave 2 in Pit 1 at Chulpani (Fig. 69). However, the specimen in Bandelier's collection also has painted decoration in red. This decoration consists inter alia of some anthropomorphous figures. For the rest Bandelier's Jaramillo specimens are parallel to those of Mollo.

The appearance of a square grave house, probably also foundations of others, coupled with Bandelier's description of Jaramillo, indicating the existence of square structures too, points to a relationship between square grave houses and slab cists.

As mentioned, no grave houses are found in Mollo although indeed farther east in the area examined by Nordenskiöld. He also speaks of, but doesn't describe, round sub-surface chambers as well as pottery parallel to that in Mollo and to Bandelier's Jaramillo specimens, all of this further underlining the relationship between slab cists and grave

houses, the latter type characterizing the area south of Lake Titicaca with its Aymara culture just prior to the Conquest.

Grave houses are mentioned by the early Spanish chroniclers as in use among the Aymara (*Tschopik* 1946 p. 10 ff, *Rydén* 1947 p. 403 ff), and since this type appears also in Turi and Mallku Xanalaya and their immediate environs, the building by the Aymara of these two strongholds, comparatively recently populated, or prior to the Conquest, is thus confirmed. The assumption is near that their construction coincided with the beginning Inca expansion from the region of Cuzco. To be sure, their nearest counterparts are found in the adjacent regions of Peru (*Franco Inojosa* 1937). However, no data are available concerning the pottery associated with these Peruvian ruins.

BIBLIOGRAPHY

Bandelier, Adolph F.

- 1910 The Islands of Titicaca and Koati.
New York.

Bennett, W. C.

- 1934 Excavations at Tiahuanaco.
Anthropological Papers of the American Museum of Natural History. Vol. XXXIV: 3. New York.
- 1936 Excavations in Bolivia.
Anthropological Papers of the American Museum of Natural History. Vol. XXXV: 4. New York.
- 1939 Archaeology of the North Coast of Peru. An Account of Exploration and Excavation in Virú and Lambayeque Valleys.
Anthropological Papers of the American Museum of Natural History. Vol. XXXVII: 1. New York.
- 1944 The North Highlands of Peru. Excavations in the Callejón de Huaylas and at Chavin de Huantar.
Anthropological Papers of the American Museum of Natural History. Vol. 39: 1. New York.
- 1950 Cultural Unity and Disunity in the Titicaca Basin.
American Antiquity. Vol. XVI: 2. Salt Lake City.

Bregante, Odilla

- 1926 Ensayo de clasificación de la cerámica del noroeste Argentina.
Buenos Aires.

Bruch, Carlos

- 1911 Exploraciones arqueológicas.
Reprint from Revista del Museo de La Plata. Tomo XIX. Buenos Aires.

Casanova, Eduardo.

- 1939 La Quebrada de Humahuaca.
Historia de la Nación Argentina. Vol. I. Buenos Aires.

Catalago

- 1953 de la primera Exposición de Folklore y Etnografía de la Región Norte del Departamento de La Paz, zona Charazani.
La Paz.

Debenicki, Salvaador

- 1910 Exploración arqueológica de los cementerios prehistóricos de la Isla de Tilcara.
Facultad de Filosofía y Letras. Publicaciones de la Sección Antropológica. No. 6. Buenos Aires.
- 1917 Investigaciones arqueológicas en los valles preandinos de la provincia de San Juan.
De la Revista de la Universidad de Buenos Aires. T. XXXII, XXXIV. Buenos Aires.

Dezobry, Hans-Dezobry

- 1926 Gott miss Peruener sein.
Wiesbaden.

Ibarra Grasso, Dick Edgar

- 1955 Esquema de la Arqueología Boliviana.
Zeitschrift für Ethnologie. Bd. 80: 2. Braunschweig.

Ibarra Grasso, Dick Edgar, and Bramisa, Leonardo.

- 1956 Nuevos Estilos en la Cerámica Indígena de Bolivia.
Publicaciones de la Universidad de Cochabamba. Museo Arqueológico de la
Universidad Mayor de San Simon. No. 1. Cochabamba.

Franco Inojosa, J. M.

- 1937 Informe sobre reconocimiento de restos arqueológicos en las cabeceras del Pau-
cartambo.
Revista del Museo Nacional. T. VI: 2, Lima.

Kidder II, Alfred

- 1943 Some Early Sites in the Northern Lake Titicaca Basin.
Papers of the Peabody Museum of American Archaeology and Ethnology. Harvard
University. Vol. 27: 1. Cambridge.

Latcham, Ricardo E.

- 1938 Arqueología de la Región Atacameña.
Santiago de Chile.

Leonard, Olen P.

- 1952 Bolivia.
Washington.

Lothrop, S. K.

- 1956 Peruvian Pacchas and Keros.
American Antiquity. Vol. 21: 3. Salt Lake City.

McBride, George McCutchen

- 1921 The Agrarian Indian Communities of Highland Bolivia.
American Geographical Society. Research Series. No. 5. New York.

Muelle, Jorge C. and Blas, Camilo:

- 1938 Muestrario de Arte Peruano Precolombino.
Revista del Museo Nacional. Vol. VII: 2. Lima.

Nordenskiöld, Erland

- 1906 Arkeologiska undersökningar i Perus och Bolivias gränstrakter 1904—05.
Kungl. Svenska Vetenskapsakademiens handlingar. Band 42. No 2. Uppsala &
Stockholm.

- 1920 The Changes in the Material Culture of two Indian Tribes under the Influence of
New Surroundings.

Comparative Ethnographical Studies. Vol. 2. Göteborg.

- 1921 The Copper and Bronze Ages in South America.

Comparative Ethnographical Studies. Vol. 4. Göteborg.

- 1953 Investigaciones arqueológicas en la región fronteriza de Peru y Bolivia.
La Paz.

Otero, Gustavo Adolfo

- 1951 La piedra mágica. Vida y costumbres de los indios callahuayas de Bolivia.
México.

Paredes, M. Rigoberto

- 1920 Mitos, supersticiones y supervivencias populares de Bolivia.
La Paz.

Ponce Sanginés, Carlos

1948 *Cerámica Tiwanacota.*

1950 Buenos Aires. Los Kallawayas. Apuntes para su estudio.

Multigrafado por el Departamento de Educación Rural. Edición limitada. La Paz.

Portugal, Maks

1955 *El misterio de las tumbas de Wanqani.*

Khana. Vol. III: 11—12. La Paz.

Ruben, Walter

1952 *Tiahuanaco, Atacama und Araukaner.*

Leipzig.

Rydén, Stig

1936 *Archaeological Researches in the Department of La Candelaria (Prov. Salta, Argentina).*

Etnologiska Studier. Vol. 3. Göteborg.

1944 *Contributions to the Archaeology of the Rio Loa Region.*

Göteborg.

1947 *Archaeological Researches in the Highlands of Bolivia.*

Göteborg.

1952 *Chullpa Pampa — A Pre-Tiahuanaco Archaeological Site in the Cochabamba Region, Bolivia.*

Ethnos. Vol. XVII. Stockholm.

1954 *Drinking-tubes on Archaeological Vessels from Western South America.*

American Antiquity. Vol. 20:2. Salt Lake City.

1955 «Tubos para beber» en los vasos arqueológicos de Suramerica occidental.

Khana. Vol. IV: 13—14. La Paz.

1956 *The Erland Nordenskiöld Archaeological Collection from the Mizque Valley. Bolivia.*

Etnologiska Studier. Vol. XX. Göteborg.

Salas, Alberto Maria

1945 *El Antigal de Ciénega Grande (Quebrada de Purmarca, Prov. de Jujuy).*

Publicaciones del Musso Etnográfico de la Facultad de Filosofía y Letras dirigidas por Francisco de Aparicio. Serie A. Vol. V. Buenos Aires.

Schmidt, Max

1929 *Kunst und Kultur von Peru.*

Berlin.

Tschopik Jr., Harry

1950 *An Andean Ceramic Tradition in Historical Perspective.*

American Antiquity. Vol. 15: 3. Menasha.

Tschopik, Marion H.

1946 *Some Notes on the Archaeology of the Department of Puno, Peru.*

Papers of the Peabody Museum of American Archaeology and Ethnology. Harvard University. Vol. XXVII: 3. Cambridge.

Uhle, Max

1922 *Fundamentos étnicos y arqueología de Arica y Tacna.*

Quito.

Wrigley, Gladys M.

1917 *The Traveling Doctors of the Andes: The Callahuayas of Bolivia.*

The Geographical Review. September 1917. New York.

198

CONTENTS

	Page
Foreword	7
Introduction	11
The Mollo Area	15
Markopata	20
Chulpani	94
Kellikani	105
Jutaraya	110
La Isla	130
Summary	132

★

Reconnaissance in Peru Border Region	160
Mallku Xanalaya and Turi	161
Mallku Xanalaya	162
Turi	165
Jaramillo	175
Ayaya	183
Mallku Xanalaya—Turi—Jaramillo—Ayaya—Mollo: Com- parison	192
Bibliography	196

Ponce Sangre, Carlos

1048 *Cerámica Tiwanacota.*

1050 Buenos Aires. Los Kallawayas. Apuntes para su estudio.

Multigráfico por el Departamento de Educación Rural. Edición limitada. La Paz.

Portugal, Mateo

1055 El misterio de la tumbas de Wanqani.

Khana. Vol. III: 11-12. La Paz.

Ruden, Walter

1052 Tiawanaco, Atacama und Arakaner.

Leipzig.

Ruden, Sieg

1056 Archaeological Researches in the Department of La Camadama Prov. Salta, Argentina.

Etnologiska Studier. Vol. 3. Göteborg.

1054 Contributions to the Archaeology of the Rio Loa Region.

Göteborg.

1057 Archaeological Researches in the Highlands of Bolivia.

Göteborg.

1052 Chullpa Pumpu - A Pre-Tiwanaco Archaeological Site in the Cochabamba Region, Bolivia.

Folkvis. Vol. XVII. Stockholm.

1054 Drinking-vases and Archaeological Vases from Western South America.

American Antiquary. Vol. 20:2. Salt Lake City.

1055 Vases para beber en los vasos arqueológicos de Suramérica occidental.

Khana. Vol. IV: 13-14. La Paz.

1056 The Island Nordenskiöld's Archaeological Collection from the Mizque Valley, Bolivia.

Etnologiska Studier. Vol. XX. Göteborg.

Sachs, Albert Marie

1045 El Angel de Cerro Grande (Quebrada de Pinarosa). Prov. de Jujuy.

Publicaciones del Museo Etnográfico de la Facultad de Filosofía y Letras dirigidas por Francisco de Azara. Serie A. Vol. V. Buenos Aires.

Schmidt, Max

1050 Kuntur und Kaktus von Peru.

Berlin.

Schmidt, E. Max

1050 An Andean Ceramic Tradition in Prehistoric Perspective.

American Antiquity. Vol. 15: 3. Menasha.

Schmidt, Max W.

1046 A New View of the Archaeology of the Department of Pinar, Peru.

Papers of the Peabody Museum of American Archaeology and Ethnology. Harvard University. Vol. XXVI: 2. Cambridge.

Schmidt, Max

1053 Tumbas y cerámica de cerámica de Andes y Tarma.

Lima.

Hopwood, Charles A.

1051 The Tiahuanaco Group and the Rio Grande Culture in Bolivia.

The Museum of the American Anthropology. Vol. 1. New York.

1055

CONTENTS

	PAGE
Foreword	7
Introduction	11
The Mollo Area	15
Markopata	20
Chulpani	94
Kellikani	105
Jutaraya	110
La Isla	130
Summary	132



Reconnaissance in Peru Border Region	160
Mallku Xanalaya and Turi	161
Mallku Xanalaya	162
Turi	165
Jaramillo	175
Ayaya	183
Mallku Xanalaya—Turi—Jaramillo—Ayaya—Mollo: Com- parison	192
Bibliography	196

**THE ETHNOGRAPHICAL
MUSEUM OF SWEDEN
MONOGRAPH SERIES**

No 1. Åke Hulkrantz

*Conceptions of the Soul among
North American Indians.
Stockholm 1933.*

Price \$ 10:—

No 2. Åke Hulkrantz

*The North American Indian
Orpheus Tradition.*

In print.

No 3. Bertil Söderberg

*Les Instruments de musique au
Bas Congo et dans les régions
avoisinantes. Stockholm 1936.*

Price (cont. méd.) 60:—

No 4. Stig Rydén

*Andean Excavations I.
The Tiahuanaco Era East of
Lake Titicaca. Stockholm 1937.*

Price \$ 10:—

THE ETHNOGRAPHICAL
MUSEUM OF SWEDEN
MONOGRAPH SERIES

No 1. Åke Hultkrantz

*Conceptions of the Soul among
North American Indians.
Stockholm 1953.*

Price \$ 10:—

No 2. Åke Hultkrantz

*The North American Indian
Orpheus Tradition.*

In print.

No 3. Bertil Söderberg

*Les instruments de musique au
Bas-Congo et dans les régions
avoisinantes. Stockholm 1956.*

Prix cour. suéd. 60:—

No 4. Stig Rydén

*Andean Excavations I.
The Tiahuanaco Era East of
Lake Titicaca. Stockholm 1957.*

Price \$ 10:—

GÖTEBORG 1957
ELANDERS BOKTRYCKERI AKTIEBOLAG

